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Fig. 1. Fig. 2.

BOATS WITH COLOURED SAILS, FROM THE TOMB OF RENESES III. AT THEBES.

THE

MANNERS AND CUSTOMS

OF

THE ANCIENT EGYPTIANS.

BY SIR J. GARDNER WILKINSON, D.C.L., F.R.S., F.R.G.S.,

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A NEW EDITION, REVISED AND CORRECTED

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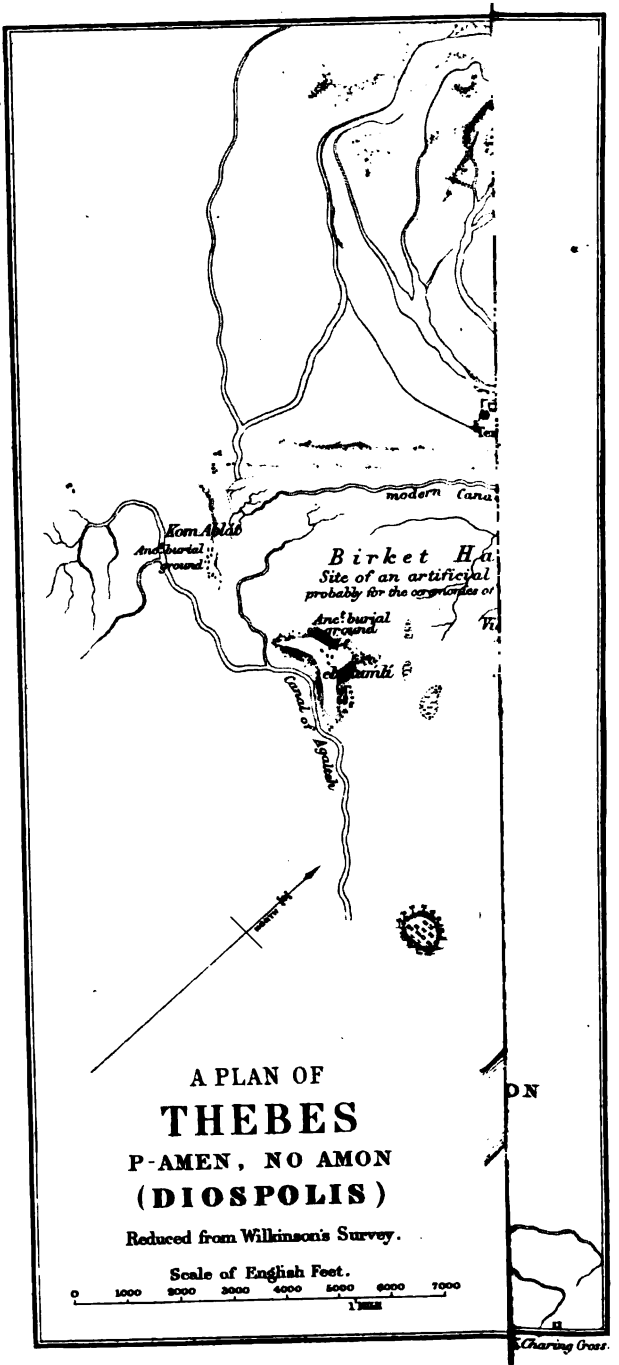
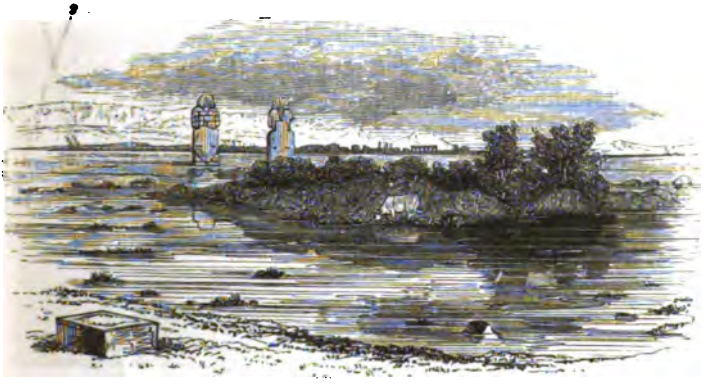

modern Cana
Birket Ha
Site of an artificial
Anc.t burial ground
Canal of Agathos
A PLAN OF
THEBES
P-AMEN, NO AMON
(DIOSPOLIS)
Reduced from Wilkinson's Survey.
Scale of English Feet.
0 1000 2000 3000 4000 5000 6000 7000
1 MILE
Charing Cross

THE

ANCIENT EGYPTIANS.



No. 267. The two colossi of Thebes.

CHAPTER VII.

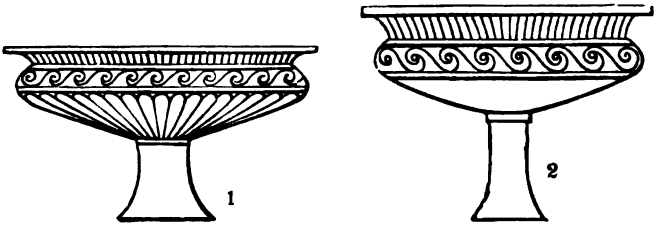
Vases of various Kinds—Boxes of the Toilet and others—Substitute for a Hinge—Parties and Conversation—Preparation for Dinner—Table brought in—Guests seated at Dinner—Figure of a dead Man brought in—Dancing and Entertainments—Game of Draughts—Various Games—Ball—Dwarfs—Wrestling—Fighting with Sticks.

HAVING concluded the preceding chapter with the arrival of a party, and the introductory custom of welcoming the guests with refreshments and music, I proceed to describe the vases placed in the apartments for the purpose of ornament, or used on those occasions; which, as I have already observed, were of hard stone, alabaster, glass, ivory, bone, porcelain, bronze, silver, or gold: the lower classes, contented with those of humbler materials, having an inferior kind of glazed pottery, or common earthenware.

Many of their ornamental vases, as well as those in common use, present the most elegant forms, which would do honour to the skill of a Greek artist; the Egyptians frequently displaying, in these objects of private luxury, the taste of a highly-refined people: and so strong a resemblance do they bear to the productions of the best epochs of ancient Greece, both in their

shape and in the fancy devices which adorn them, that some might even imagine them borrowed from Greek patterns. But they are purely Egyptian, and were universally adopted in the Valley of the Nile, long before the graceful forms we admire were known in Greece: a fact invariably acknowledged by those who are acquainted with the remote age of Egyptian monuments, and the period when the paintings representing them were executed in the tombs or temples of the Thebaïd.

Some, indeed, of the most elegant date in the early age of the third Thothmes, a monarch who appears to have lived about the year 1490 before our era, and whom I assume to be the Pharaoh of the Jewish Exodus: and we not only admire their forms, but the richness of the materials of which they were made, the colours and the hieroglyphics themselves showing them to



No 268. Gold vases of the time of Thothmes III. 1490 B.C. *Thebes.*

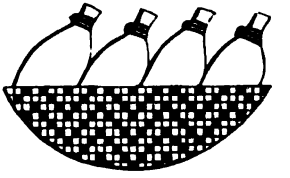
have been of gold and silver, or of this last, inlaid with the more precious metal.[1]

Those of bronze, alabaster, glass, porcelain, and even of ordinary pottery, were also deserving of admiration, from the beauty of their shapes, the designs which ornamented them, and the superior quality of their materials; and gold and silver cups were often beautifully engraved, and studded with precious stones. Among these we readily distinguish the green emerald, the purple amethyst, and other gems; and when an animal's head adorned their handles, the eyes were frequently composed

[1] It will be seen from the tomb of Rekhmara that vases of this shape came from the Kef.t, or Phœnicia, and the Rut-en-nu, or Syrians. They were probably the celebrated silver plate of Sidon. Amongst the shapes of the Phœnician vases may be recognised the elegant prototypes of the Greek *amphoreus*, *krater*, *œnochoé*, and *rhyta*, in shape of the heads of lions, bulls, calf, and eagle (mistaken for a cock, but exactly like the Assyrian representation of the head of that bird on the sculptures from Nimroud). The Rut-en-nu bring also a vase in shape of a human hand, also a *rhyton*, which was formerly mistaken for a glove. Similar vases are mentioned in the Annals of Thothmes III., as also a 'silver jug of the make of the Kefau,' or the Phœnicians. ('Records of the Past,' ii. p. 27, pl. v.)—S. B.

of them, except when enamel, or some coloured composition, was employed as a substitute.

That the Egyptians made great use of precious stones[1] for their vases, and for women's necklaces, rings, bracelets, and other ornamental purposes, is evident from the paintings at Thebes, and from the numerous articles of jewellery discovered in the tombs; they were among the presents brought by the conquered nations tributary to the Egyptians; and their value and nature are indicated by the hieroglyphics accompanying them, as well as by the care with which they are tied up in bags,[2] and secured with a seal.



Bags, probably containing precious stones, tied up and sealed. No. 269. *Thebes.*

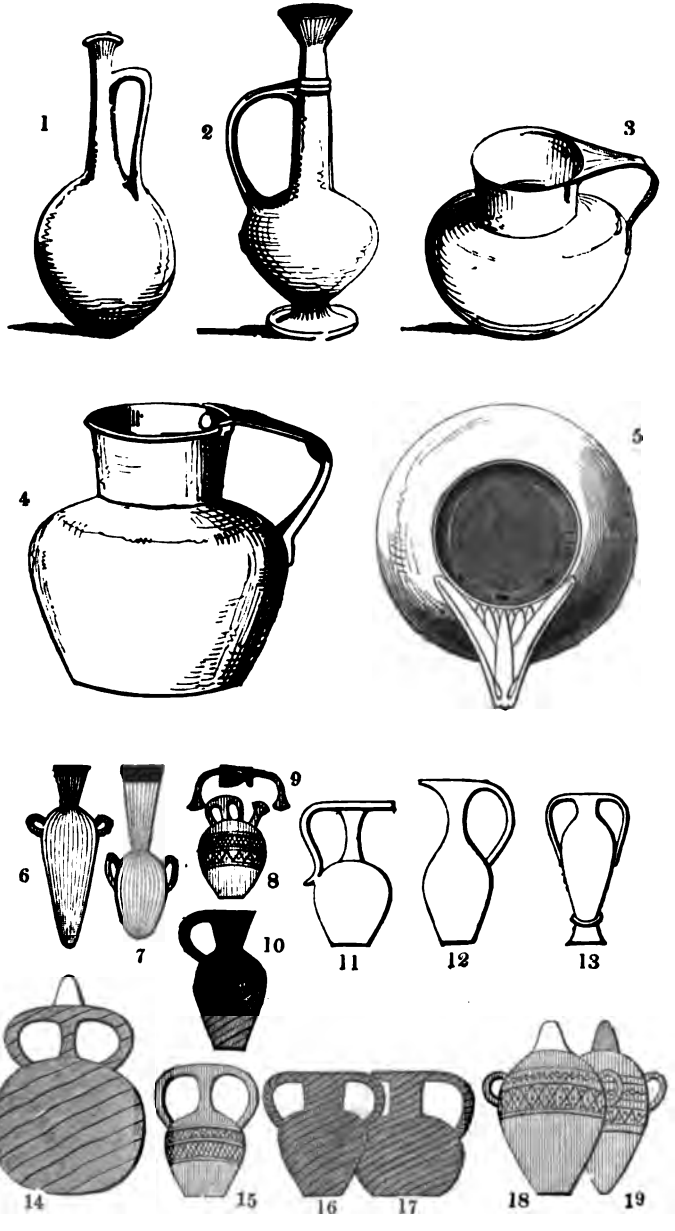
Many of the bronze vases found at Thebes and in other parts of Egypt are of a quality which cannot fail to excite admiration, and prove the skill possessed by the Egyptians in the art of working and compounding metals. We are surprised at the rich sonorous tones they emit on being struck, the fine polish of which they are frequently susceptible, and the high finish given them by the workmen: nor are the knives and daggers made of the same materials less deserving of notice; the elastic spring they possessed, and even retain to the present day, being such as could only be looked for in a blade of steel. I believe the exact proportions of the copper and alloys, in the different specimens preserved in the museums of Europe, have not yet been ascertained; but it would be curious to know their composition, particularly that of the interesting dagger of the Berlin Collection, which is as remarkable for the elasticity of its blade as for the neatness and perfection of its finish.[3] This part of the subject, however, properly relates to the working of metals, which I shall have occasion hereafter to notice; I therefore return to the Egyptian vases.

Some vases had one, others two handles; some were ornamented with the heads of wild animals, as the ibex, oryx, or

[1] Rather harder than precious stones: cornelian, lapis lazuli, Amazon stone, jasper, and their imitations, being principally employed, but no transparent precious stones.—S. B.

[2] These bags were called *arb*, and held gold dust rather than precious stones, which were usually piled up in baskets or trays.—S. B.

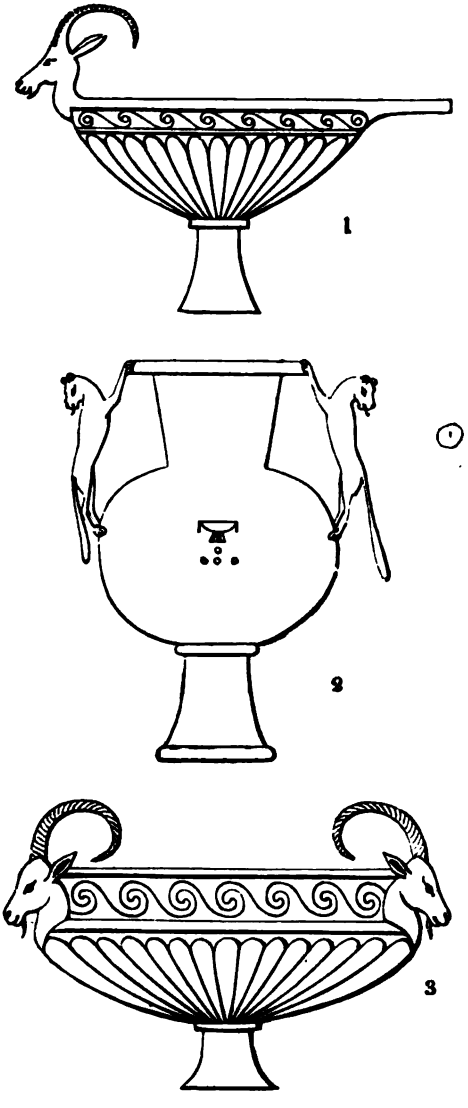
[3] Vauquelin analysed the bronze of a dagger in the Passalacqua Collection, now in the Berlin Museum. The quantity sent was so small that he could not detect any tin. That of a mirror contained copper 85, tin 14, iron 1. (Passalacqua, 'Catalogue raisonné,' 8vo. Berl. 1826, p. 238.)



No. 270. Vases, with one and two handles.

Figs. 1, 2. Earthenware vases found at Thebes.
3. Bronze vase. *Fig.* 4. Bronze vase.
5. The same seen from above, showing the top of the handle in shape of a flower of the papyrus.
6 to 19. From the paintings of Thebes.

gazelle; others had a head on either side, a fox, a cat, or something similar; and many were ornamented with horses' heads, a

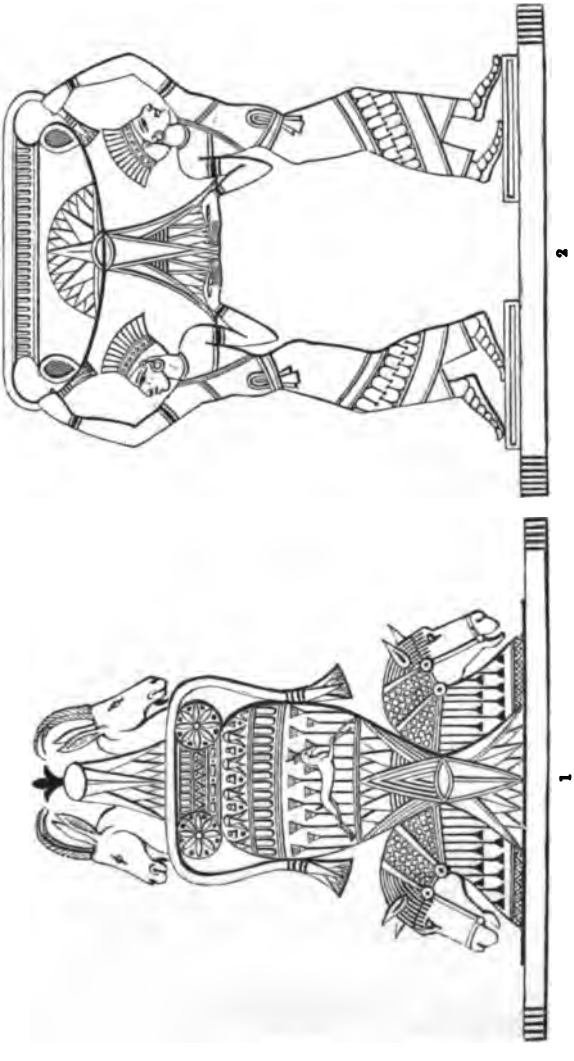


No. 271. Vases ornamented with one and two heads, or the whole animal. Thebes.

Fig. 2 has the word 'gold' upon it.

whole quadruped, a goose's head, figures of captives, or fancy devices. Many of these last were extraordinary and monstrous,

presenting nothing to admire, except the brilliancy of their colours, when made of porcelain, or the richness of their



materials, when of gold, inlaid with stones: and the head of a Typhonian[1] figure[2] sometimes served for the cover of a vase, as

[1] It is remarkable that the name of Typhon, the evil deity, is retained in the Arabic word *Tuphán*, 'the deluge.' [The actual representation is that of the god Bes, or Bessa, and two snakes: this deity is supposed to have been of Asiatic origin. The head on No. 1 is rather that of a gryphon. —S. B.]

[2] Woodcut No. 273, *fig.* 2.

it often did for the support of a mirror, which daily displayed the beauty of an Egyptian lady. Many, too, of the ordinary forms

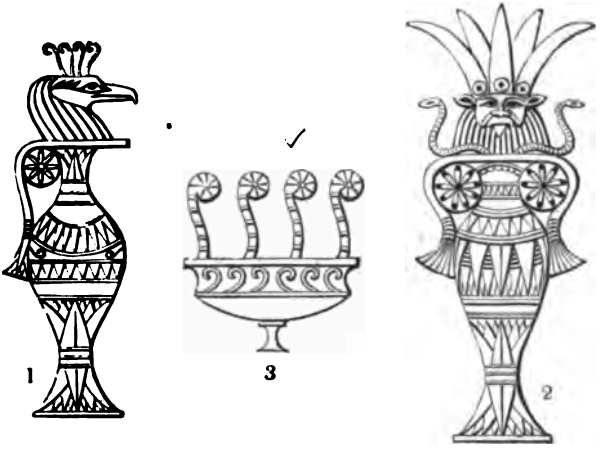
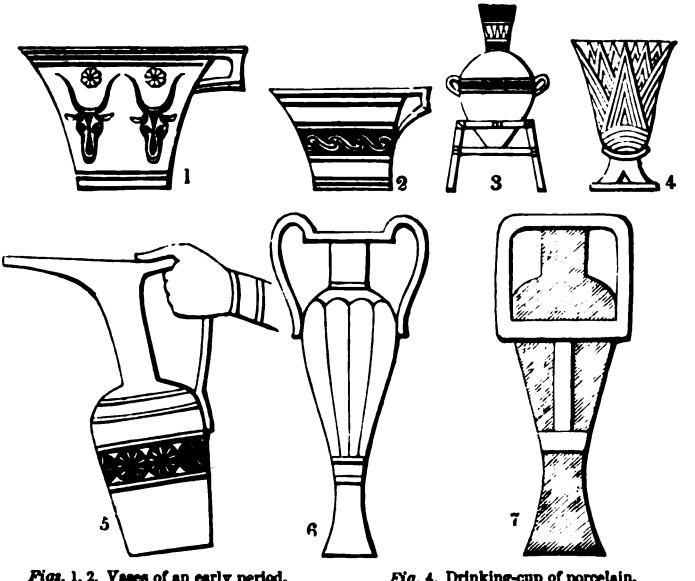


Fig. 1. Vase, with head of a bird as a cover.
2. With head of a Typhonian monster.
3. A golden vase, without handles; the border with the Kumation moulding.

No. 273. *Thebes.*

of their vases do not claim our admiration, either for neatness or symmetry, and they are occasionally as devoid of taste as



Figs. 1, 2. Vases of an early period.
3. Vase on a stand.
Fig. 4. Drinking-cup of porcelain.
7. Bronze vase, bound with gold.

No. 274. *From the paintings of Thebes.*

the wine bottles and flower-pots of an English cellar and conservatory.

Some had a single handle fixed to one side, and were in shape not unlike our cream jugs,[1] ornamented with the heads of oxen, or fancy devices: others were of bronze, bound with gold, having handles of the same metal; and many depended on

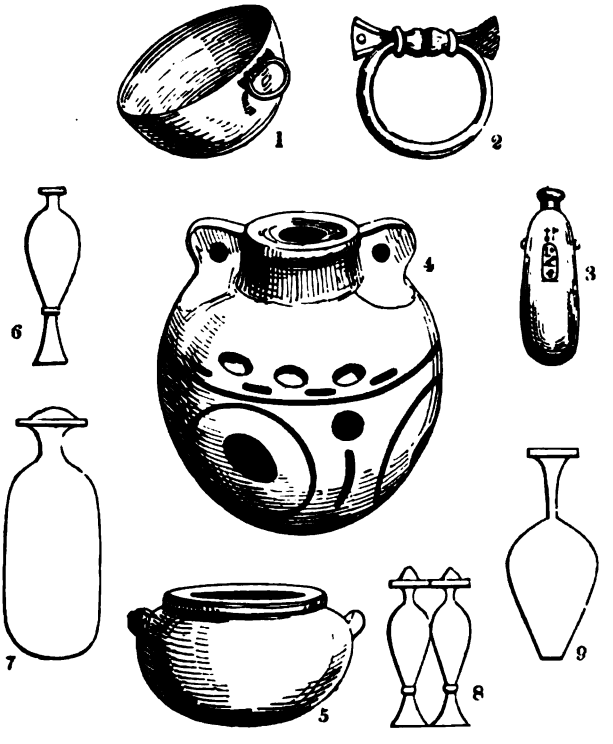


Fig. 1. Bronze vase brought by me from Thebes, now in the British Museum.
2. Showing how the handle is fixed.
3. Alabaster vase from Thebes, of the time of Necho II., in the British Museum.
4. Vase at Berlin of cut glass.
5. Stone vase.
6 to 9. From the sculptures of Thebes.

No. 275.

accidental caprice. Several vases had simple handles or rings on either side; others were destitute of these, and of every exterior ornament: some again were furnished with a single ring, attached to a neat bar,[2] or with a small knob,[3] projecting from

[1] Woodcut No. 274, *figs.* 1, 2.
[2] Woodcut No. 275, *figs.* 1, 2.
[3] The vases in No. 274 are as follows: 1, 2, beakers or drinking vessels, like the Greek *kantharos*; 3, *amphoreus* or *diota* of painted earthenware on a wooden stand;

the side;[1] and many of those used in the service of the temple, highly ornamented with figures of deities in relief,[2] were attached to a movable curved handle, on the principle of, though more elegant in form than, their common culinary utensils.[3] They were of bronze, and the style of the figures represented on them was as superior as the workmanship and quality of the materials;

Fig. 1. Bronze vase 2¼ inches high, used in the temple, in my possession.
2. A larger one, in the Berlin Museum.
3, 4, 5. Culinary utensils in the sculptures at Thebes.

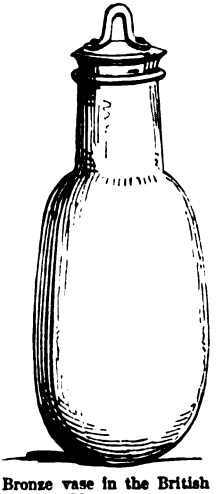
No. 276.

and while citing them, I cannot omit the notice of a vase of elongated form belonging to the late Mr. Salt,[4] in the manufacture of which the skill of no ordinary artisan is displayed; and its cover, fitting with so much nicety that it resembles the effect of a spring, vies with the excellent composition of the metal in claiming our admiration.[5]

4, goblet in shape of a papyrus flower; 5, jug very like the early Greek *ôênochôê*; 6 resembles a kind of *amphoreus*; 7 is probably of some precious material, and is of a shape more Egyptian.—S. B.

[1] Woodcut No. 275, *figs.* 3, 4, 5.
[2] Woodcut No. 276, *fig.* 1.
[3] Woodcut No. 276, *fig.* 3.
[4] Woodcut No. 277.
[5] In the woodcut No. 276, No. 1 is a situlus or situla of bronze, with figures in bas-relief. They are generally Amen-Ra in his character of Khem, Horus, Thoth, Sekhet, Nefer Tum, Athor, Isis, Nephthys, and Harpocrates. Sometimes the boat of Ra or the Sun, adored by cynocephali, is round the neck. They are always of small size, and were either votive or held in the hands of figures. Two of large size in the British Museum,

Another of much larger dimensions, and of a different form, was found by me at Thebes, and is now in the British Museum.[1] It is entirely of bronze, with two large handles fastened on with pins; and though it resembles some of the caldrons introduced in the paintings representing the Egyptian kitchen, we may doubt from its lightness whether it was used there, or intended as a basin or for a similar purpose.



Bronze vase in the British Museum. No. 277.

Vases surmounted with a human head, forming the cover, appear to have been frequently used for keeping gold and other precious objects, representations of which are met with in the small side chambers of Medeenet Haboo, the supposed treasury of King Rameses; and it is not improbable that their being applied to this purpose in early times obtained for them a name derived from the Coptic ⲛⲟⲩϐ, 'gold,' afterwards confounded with Canopus; though this last, when applied to the town, is compounded of ⲕⲁϩⲓ ⲛⲟⲩϐ (*kahi noub*), 'the golden land,' or *χρύσεον ἔδαφος*. Similar vases, with human as well as other heads, were also used in the ceremonies of the dead.

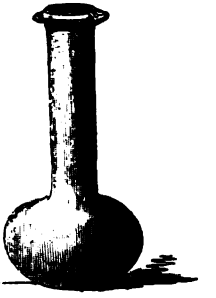
If Rameses III. were really the same as the wealthy Rhampsinitus of Herodotus, these chambers may have been the very treasury he mentions, where the thieves displayed so much dexterity; for though his account might lead us to infer that it was at Memphis, we are not obliged to confine the seat of government, and consequently the scene of the story, to the capital of Lower Egypt, even during the reign of his Rhampsinitus; and the historian, who lived almost solely

Large bronze vase brought from Thebes, now in the British Museum. No. 278.

Nos. 5202, 5203, are engraved in outlines, with scenes of adoration to Osiris, Isis, and Nephthys, and dedicatory for Petamen nebkatta, a priest and scribe, holding amongst other offices that of prophet of the cynocephali of the god Khons at Thebes.—S. B.

[1] Woodcut No. 278.

in the vicinity of Memphis and Heliopolis, during his short stay in the country, appears to speak of those cities as if Thebes had always been a place of little consequence, and scarcely worthy of notice. Indeed, it may fairly be doubted if Herodotus ever visited Thebes; though I cannot go so far as some, who question his having been in Egypt, and suppose he derived his information from the works of older writers.



Glass bottle.
No. 279. Thebes.

Bottles, small vases, and pots, used for holding ointment, or other purposes connected with the toilet, were of alabaster,[1] glass,[2] porcelain,[3] and hard stone, as granite, basalt, porphyry, serpentine, or breccia:[4] some were of earthenware,[5] ivory, bone, and other materials, according to the choice or means of individuals; but in a work of so limited a nature as the present it is impossible to introduce specimens of the numerous forms they present, or to illustrate the various styles of their workmanship: I have therefore only selected those which relate more immediately

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[1] The principal shapes of the alabaster vases are the calathus, or mortar-shaped vase; its name appears to have been *bast*; the olla or jar, *nams.t*; the beaker, *hut* and *keken*; a globoid bottle, *hemen*; the bottle or *dénochóé*, and the alabastos, *χen*; and other shapes are also found. But the most elegant shape in this material is a kind of unguent vase with wide mouth and pyriform body. The alabaster or rather arragonite vases belong to two periods, those of a uniform colour and fine material, in use from the earlier dynasties till the 26th, when the vases are of a zoned arragonite of alternate white and yellow layers.—S. B.

[2] The vases in glass are principally small perfume bottles for the toilet, and were probably of Phœnician as well as Egyptian origin; they are divided into two classes, those of opaque or semi-opaque blue glass, with wavy lines in white, or yellow and red. The oldest known, now in the British Museum, bears the name of Thothmes III. The later bottles of transparent green or coloured glass, and of the shape in No. 279, are from the time of the 26th Dynasty, or the seventh century B.C. —S. B.

[3] The vases of porcelain are principally bowls and goblets, and those of the earlier period are of a dark blue colour. A bowl in the British Museum, No. 4796, is inscribed with the name of Rameses II. At the time of the 26th Dynasty, a pale apple-green ware appears, principally used for circular flasks like pilgrims' bottles, having inscriptions on the bands of the edge, with invocations to deities for a happy year to its possessor, and sometimes the name of a king appears.—S. B.

[4] Vases in these materials are rarer than those in alabaster, and all the elegant forms of the alabaster vases are not reproduced in them. Amongst those in them are the calathus, or mortar-shaped vase, the jars, paterœ or circular plates or bowls, and globular vases with short necks, to hold in the hand and offer milk or wine; amphorœ and jugs of small size occasionally occur.—S. B.

[5] Conf. Athen. Deipnos. ii. c. 3: 'Earthenware vases, which we highly esteem, brought from Coptos.' [The shapes and sizes of earthenware vases are too numerous to detail, the largest and the smallest of various varieties being found; they are also of various classes of earthenware, plain, polished, and perhaps slightly glazed; elegant forms even for the toilet are found in this material.—S. B.]

to the present subject, and, if required, shall, at some future period, examine the vases of the Egyptians in the minute and

No. 280. *Fig.* 1. Alabaster vase in the British Museum, from Thebes.
2. Porcelain vase in Mr. Salt's Collection.

detailed manner which the interesting variety, found in the tombs or painted on the monuments, deserves.

Fig. 1. Alabaster vase, containing sweet-scented ointment, in the Museum of Alnwick Castle.
2. Hieroglyphics on the vase, presenting the name of the queen Hasheps, of the 18th Dynasty.
3. The stopper. *Figs.* 4 and 9. Porcelain vases, from the paintings of Thebes.
5. Porcelain cup, in my possession, from Thebes.
6. Vase of ivory, in my possession, containing a dark-coloured ointment; from Thebes.
7. Alabaster vase for holding kohl or stibium, with its lid (8); in the Museum of Alnwick Castle.

No. 281.

Small boxes, made of wood or ivory, were also numerous, offering, like the vases, a multiplicity of forms; and some which contained cosmetics of divers kinds served to deck the dressing-table, or a lady's boudoir. They were carved in various ways, and loaded with ornamental devices in relief; sometimes representing the favourite lotus flower, with its buds and stalks, a goose, gazelle, fox, or other animal.[1] Many were of considerable length, terminating in a hollow shell, not unlike a spoon in shape and depth, covered with a lid turning on a pin; and to this, which may properly be styled the box, the remaining part was merely an accessory, intended for ornament, or serving as a handle.

Box with figure of the god Bes. No. 282. *British Museum.*

One of these has been already noticed for the elegance of its execution, and the grace of a female playing the guitar carved upon it; and, though on so small a scale it is difficult to do justice to the original, the reader may form some idea of the attitude of the figure from the accompanying woodcut.[2] They were generally of sycamore wood, sometimes of tamarisk[3] or sont,[4] and occasionally the more costly ivory or inlaid work was substituted for wood. To many, a handle of less disproportionate length was attached, representing the usual lotus flower, a figure, a Typhonian monster,[5] an animal, a bird, a fish, or a reptile; and the box itself, whether covered with a lid or open, was in character with the remaining part.

[1] Several charming spoons or boxes of this kind exist in different European collections. One of ivory, in the Brit. Museum, No. 5946, represents a swimming duck holding a fish in its beak, which it conveys to the ducklings, who fly to catch it. Other examples which have been figured, represent Egyptian women swimming across the Nile, girdled round the loins and holding a vase, as in woodcut No. 286, or ducks. Those with a bouquet of flowers are more common, both in wood and ivory. Others are in the shape of cartouches, and one of these has at the bottom engraved in outline a pond surrounded by papyrus plants, and in the pond three fishes swimming, biting the leaves and stems of the plants. (Prisse, 'Mon. Égypt.' pl. xviii.) A few are carved spoons, the bowl in shape of the shell *Indina nilotica*, and the long cylindrical handle recurved at the end, and terminating in the head of a water-bird.—S. B.

[2] Woodcut No. 284; see also woodcut No. 177, vol. i. p. 407.

[3] *Tamarix orientalis*; Arab. *Athul.*

[4] *Acacia* (or *Mimosa*) *nilotica.*

[5] The Asiatic god *Bes* and Egyptian Bessa, who appears at the time of the 22nd Dynasty. He is distinct from Set or Typhon, and often appears on objects of the toilet. One of these boxes with two spoons contained lumps of white wax.—S. B.

Some of these shallow boxes were probably intended to contain small portions of ointment, taken from a large vase at the time it was wanted, or for other purposes connected with the toilet, where greater depth was not required; and in many instances they so nearly resemble spoons, that it is difficult to decide to which of the two they ought to be referred.

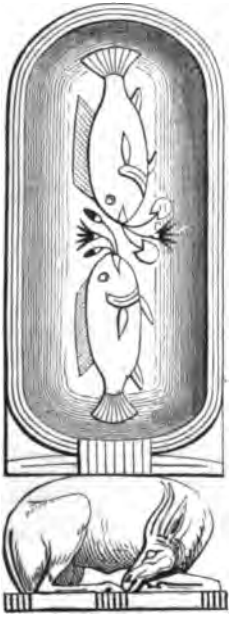
No. 283. Box with a long handle, ornamented with papyrus flowers. *British Museum.*

No. 284. Box in the Berlin Museum, female playing on the guitar, and papyrus flowers; showing the lid open.

Many are made in the form of a royal oval, with and without a handle;[1] and the body of a wooden fish is scooped out, and closed with a cover imitating the scales, to deceive the eye by the appearance of a solid mass. Sometimes a goose is represented, ready for table,[2] or swimming on the water[3] and pluming itself; whose head constitutes the handle of a box formed of its hollow

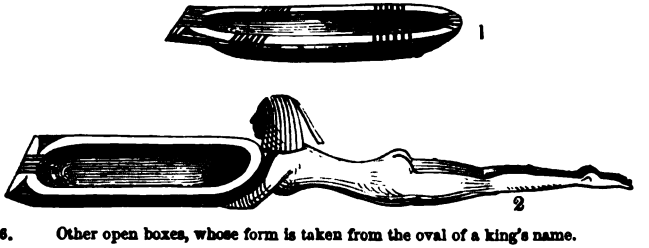
[1] Woodcut No. 286. [2] Woodcut No. 288. [3] Woodcut No. 289, *fig.* 2.

body: some consist of an open part, or cup, attached to a covered box;[1] others of different shapes offer the usual variety of fancy devices, and some without covers may come under the denomi-



No. 285. Wooden box or saucer without cover. *British Museum.*

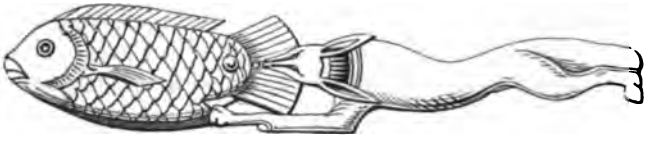
nation of saucers. Others bear the precise form and character of a box, being deeper and more capacious, probably used for hold-



No. 286. Other open boxes, whose form is taken from the oval of a king's name.
Alnwick Castle and Leyden Museum.

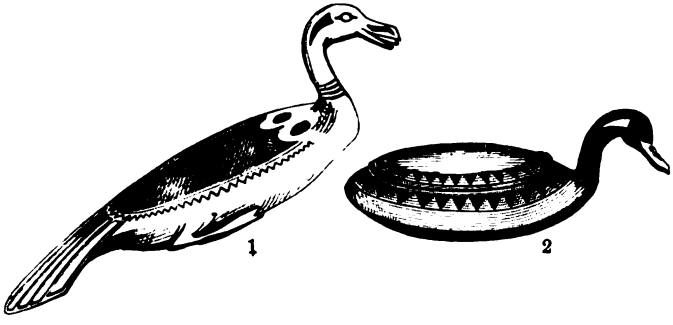
ing trinkets, or occasionally as repositories for the small pots of ointment or scented oils, and bottles containing the collyrium

[1] Woodcut No. 290.

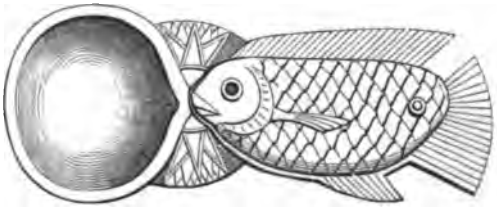


No. 287. Box in the form of a fish, with turning lid. *Mr. Salt's Collection.*

No. 288. Box with and without its cover. *Museum of Alnwick Castle.*



No. 289. Boxes in form of geese. *British Museum and Leyden Museum.*

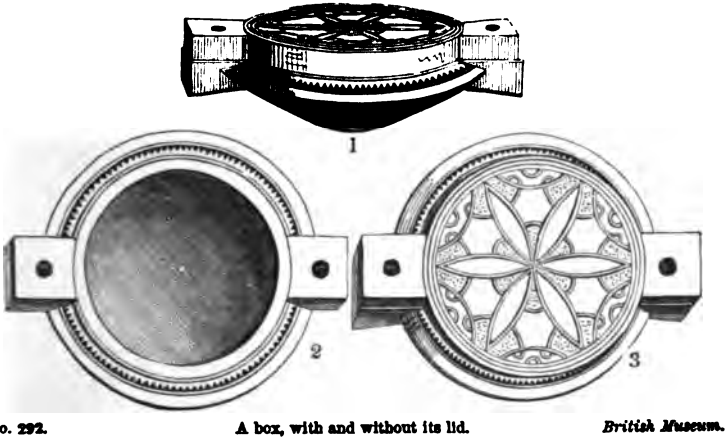


No. 290. Box in shape of a fish, one part open and one covered. *British Museum.*

No. 291. Box in shape of a gourd, with the lid turning, as usual, on a pin. *British Museum.*

applied to the eyes, which I shall have occasion to notice with the toilet of the ladies.

Some were divided into separate compartments, covered by a common lid, either sliding in a groove,[1] or turning on a pin at



No. 292. A box, with and without its lid. *British Museum.*

one end; and many of still larger dimensions sufficed to contain a mirror, combs, and perhaps even some articles of dress.

These boxes were frequently of costly materials, veneered

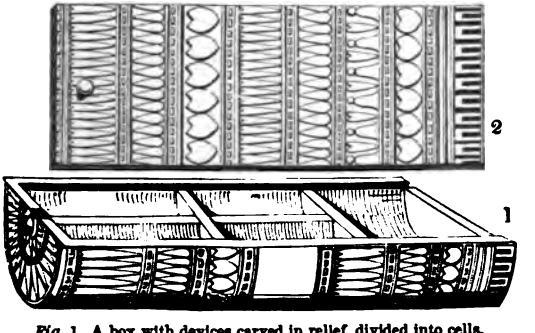


Fig. 1. A box with devices carved in relief, divided into cells.
2. The lid, which slides into a groove.

No. 293. *British Museum.*

with rare woods, or made of ebony, inlaid with ivory, painted with various devices, or stained to imitate materials of a valuable nature; and the mode of fastening some of them, and the curious

[1] Woodcut No. 293.

substitute for a hinge, show the lid was entirely removed, and that the box remained open while used. The principle of this will be better understood by reference to the woodcut No. 294, where *fig.* 1 represents a side section of the box, and *fig.* 2 the inside of the lid. At the upper part of the back C, *fig.* 3, a small hole E is cut, which, when the box is closed, receives the nut D, projecting from the cross-bar B, on the inside of the lid; and the two knobs F and G, one on the lid, the other on the front of the box itself,

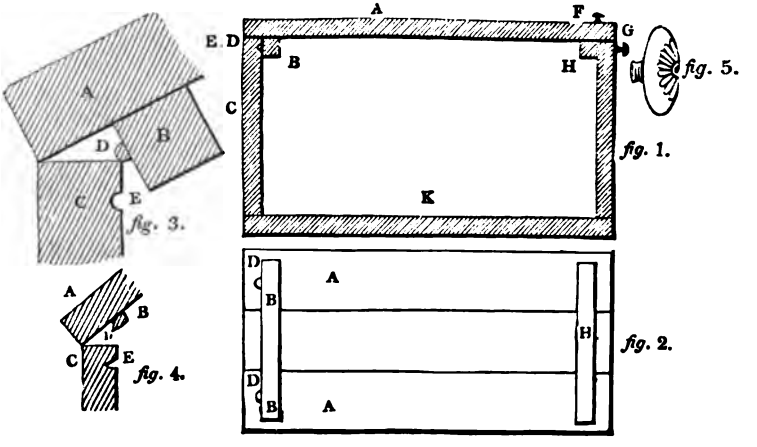


Fig. 1. Section of the box. A, the lid. K, the bottom. C, the side.
2. The inside of the lid. B, H, cross-bars nailed inside the lid.

No. 294. *Found at Thebes.*

served not only for ornament but for fastening it, a band being wound round them, and secured with a seal. These knobs, which were of ebony or other hard wood,[1] were frequently turned with great care, and inlaid with ivory and silver, an instance of which is given in *fig.* 5.

Some boxes were made with a pointed summit, divided into two parts, one of which only opened, turning on small pivots at the base, and the two ends of the box resembled in form the gable ends, as the top the shelving roof, of a house.[2] The sides

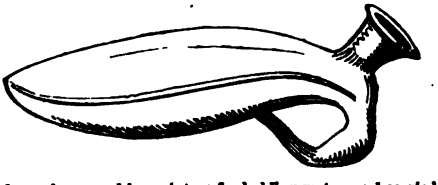
[1] Fragments of boxes of ebony of the time of Amenophis III. and his queen Tai are in the British Museum, No. 5899a, and other fragments of boxes have been found at the Biban ul Molook. (Mariette-Bey, 'Monuments divers,' pl. 36a.) They are engraved with the name and titles of the monarch, and apparently came from his sepulchre.—S. B.

[2] Besides the boxes in ebony inlaid with stained ivory and porcelain, many of painted sycamore, with painted inscriptions, apparently sepulchral, some as early as Pepi of the 6th Dynasty (British Museum, No. 5910) are found. One cylindrical unpainted box is filled with flour (British Mus., No. 5923); another of square shape, standing on four legs, is made of papyrus

were, as usual, secured by glue and nails, generally of wood, and dovetailed, a method of joining adopted in Egypt at the most remote period; but the description of these belongs more properly to cabinet work, as those employed for holding the combs, and similar objects, to the toilet.

Some vases have been found in boxes, made of wicker-work, closed with stoppers of wood, reed, or other materials, supposed to belong either to a lady's toilet or to a medical man; one of which, now preserved in the Berlin Museum, has been already noticed. The vases are six in number, varying slightly in form and size: five of alabaster, and the remaining one of serpentine, each standing in its own cell or compartment.

Bottles of terra-cotta are also met with, in very great abundance, of the most varied forms and dimensions, made for every kind of purpose of which they were susceptible; and I have met with one which appears to have belonged to a painter,



Terra-cotta bottle, perhaps used by painters for holding water, and carried on the thumb. No. 296. *British Museum.*

and to have been intended for holding water to moisten the colours; the form and position of the handle suggesting that it was held on the thumb of the left hand, while the person wrote or painted with his right.

Besides vases and bottles of stone, and of the materials above mentioned, the Egyptians sometimes had them of leather or prepared skin; and though it does not appear to what purpose they were generally applied, we may conclude, from the fact of their being imported into Egypt from foreign countries, that they were required for a particular use, or preferred on account of some peculiar quality in the leather itself. The Egyptians, we are informed by Herodotus, like the Greeks and Romans, occasionally employed skins for holding wine as well as water, especially when removing it from one place to another; and the

(No. 5918); and one little wooden box (British Museum, No. 5906) has hinges like a modern snuff-box.—S. B.

fact that the robber of Rhampsinitus's[1] treasury adopted the same method of carrying his wine in skins, at a time when any unusual custom would necessarily have been avoided, shows it to have been one of common occurrence. It is, however, doubtful if leathern bottles were applied to the same purpose; and as we do not find them introduced at parties, it may be inferred that they were neither intended for drawing wine from the amphoræ, nor for handing it at table.

Bottles and narrow-mouthed vases, placed in the sitting-room and holding water, were frequently closed with some light substance,[2] through which the warm air could pass, as it rose, during the cooling process, being submitted to a current of air to increase the evaporation: leaves were often employed for this purpose, as at the present day, those of a fragrant kind being probably selected; and the same prejudice against leaving a vase uncovered may have existed among the ancient as among the modern inhabitants of Egypt.

While the guests were entertained with music and the dance, dinner was prepared; but, as it consisted of a considerable number of dishes, and the meat was killed for the occasion, as at the present day in Eastern and tropical climates, some time elapsed before it was put upon the table. During this interval, conversation was not neglected; and the chit-chat of the day, public affairs, and questions of business or amusement, occupied the attention of the men. Sometimes an accident occurring at the house afforded an additional subject for remark; and, as at the feast of the rich Nasidienus, the fall of a dusty curtain, or some ill-secured piece of furniture, induced many to offer condolences to the host, while others indulged in the criticisms of a sarcastic *Balatro*.[3]

A circumstance of this kind is represented in a tomb at Thebes. A party assembled at the house of a friend are regaled with the sound of music, and the customary introduction of refreshments; and no attention which the host could show his visitors appears to be neglected on the occasion. The wine has circulated freely, and as they are indulging in amusing converse,

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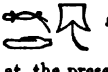
[1] Herod. ii. 121. The  *set* or water-skin was used, as at the present day, for carrying water across the desert on the backs of asses. It is mentioned in the inscription of Seti I. at Rhedesieh. ('Records of the Past,' viii. p. 77.)—S. B.

[2] Woodcut No. 303.

[3] Hor. Sat. ii. 8, 64.

a young man, perhaps from inadvertence, perhaps from the effect of intemperance, reclining with his whole weight against a column in the centre of the apartment, throws it down upon the assembled guests, who are seen, with uplifted hands, endeavouring to protect themselves and escape from its fall.

Many similar instances of a talent for caricature are observable in the compositions of Egyptian artists, who executed the paintings of the tombs; and the ladies are not spared. We are led to infer that they were not deficient in the talent of conversation: and the numerous subjects they proposed, are shown to have been examined with great animation. Among these, the question of dress was not forgotten, and the patterns or the value of trinkets were discussed with proportionate

No. 296. Ladies at a party, talking about their earrings. *Thebes.*

interest. The maker of an earring, or the shop where it was purchased, was anxiously inquired; each compared the workmanship, the style, and the materials of those she wore, coveted her neighbour's, or preferred her own; and women of every class vied with each other in the display of 'jewels of silver, and jewels of gold,'[1] in the texture of their raiment, the neatness of their sandals, and the arrangement or beauty of their plaited hair.[2]

Agreeable conversation was considered the principal charm of accomplished society: for, as Athenæus says of the ancient

[1] Exod. xii. 35. [These scenes of symposia or banquets are found in the tombs of the 18th and 19th Dynasties. At an earlier period they were not represented, the favourite subjects being the chase and the farm.—S. B.]

[2] The Egyptian women appear to have been very proud of their hair, and locks of it, when very long, were sometimes cut off and wrapped up separately, to be buried in their tomb after death. Conf. 1 Cor. xi. 15, and 1 Pet. iii. 3.

Greeks,[1] 'It was more requisite and becoming to gratify the company by pleasing conversation than with variety of dishes;' and affairs of great moment were probably discussed at the festive meeting, as in the heroic ages described by Homer.[2]

In the meantime, the kitchen presented an animated scene; and the cook, with many assistants, was engaged in making ready for dinner: an ox, kid,[3] wild goat, gazelle, or oryx, and a quantity of geese, ducks, widgeons, quails, or other birds, were obtained for the occasion. Mutton, it is supposed, was unlawful food to the inhabitants of the Thebaïd; and Plutarch affirms[4] that 'no Egyptians, except the Lycopolites, eat the flesh of sheep;' while Strabo confines the sacrifice of this animal to the nome of Nitriotis.[5] But though we do not find from the sculptures that sheep were killed for the altar or the table, it is evident they abounded in Egypt, and even at Thebes, being frequently represented in the tombs; and large flocks are shown to have been kept, especially in the vicinity of Memphis, if only for the sake of their wool. Sometimes they amounted to more than 2000; and in a tomb below the Pyramids, 974 rams are brought to be registered by the scribes, as part of the stock of the deceased; implying an equal number of ewes, independent of lambs, which in the benign climate of Egypt were twice produced within the space of one year.[6]

Beef and goose constituted the principal part of the animal food throughout Egypt;[7] and by a prudent foresight, in a country possessing neither extensive pasture lands, nor great abundance of cattle, the cow was held sacred, and consequently forbidden to be eaten.[8] And thus the risk of exhausting, or at least greatly lessening their stock was effectually prevented, and a constant supply maintained for the consumption of the people.

That a considerable quantity of meat was served up at those

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[1] Athen. x. 5.

[2] Hom. Il. I. 70.

[3] Except in the Mendesian nome. Herodot. ii. 46.

[4] Plut. de Isid. s. 72. He also says (s. 5), 'The priests abstain from mutton and swine's flesh.'

[5] Strabo, xvii.

[6] This is still the case if well fed. (Diodorus, lib. i. 36 and 87.)

[7] In the lists of the 4th and following Dynasties (Lepsius, Denkm. Abth. ii. 25) the following animals are mentioned as eaten: the hyæna, *het.t*; goat, *kahs*; the leucoryx, *mahut*; veal, *mast*; bull, *nekau*; and cow beef, *au*: and amongst birds the dove or pigeon, *mennu t*; the goose, *semen*; another kind, *sa* and *set*, one the vulpanser goose; the heron, *t'a*. Another list (Lepsius, Denkm. ii. 28) has other ducks called *ru* and *terp*.—S. B.

[8] Plutarch (s. 31) says, red oxen were lawful for sacrifice, but not so if they had a single white hair. Conf. Numb. xix. 2: 'Bring thee a red heifer without spot.' *Vide* Herodot. ii. 38, 41. For the table the Egyptians killed oxen with black or red spots.

repasts to which strangers were invited, is evident from the sculptures, and agreeable with the customs of Eastern nations, whose *azooma*, or feast, prides itself in the quantity and variety of dishes, in the unsparing profusion of viands, and, whenever wine is permitted, in the freedom of the bowl. An endless succession of vegetables was also required on all occasions, and, when dining in private, dishes of that kind were in greater request than joints, even at the tables of the rich: we are therefore not surprised to find the Israelites, who by their long residence there had acquired similar habits, regretting them equally with the meat and fish,[1] which they 'did eat in Egypt freely;' and the advantages of a leguminous diet are still acknowledged by the inhabitants of modern Egypt. This, in a hot climate, is far more conducive to health than the constant introduction of meat, which is principally used to flavour the vegetables cooked with it; and if at an Eastern feast a greater quantity of meat is introduced, the object is rather to do honour to the guests, who in most countries and all ages have been welcomed by an encouragement of excess, and a display of such things as show a desire on the part of the host to spare no expense in their entertainment.

The same custom prevailed with the ancient Egyptians; and their mode of eating was very similar to that now adopted in Cairo and throughout the East, each person sitting round a table, and dipping his bread into a dish placed in the centre, removed on a sign made by the host, and succeeded by others, whose rotation depends on established rule, and whose number is predetermined according to the size of the party or quality of the guests.

Among the lower orders, vegetables constituted a very great part of their ordinary food, and they gladly availed themselves of the variety and abundance of esculent roots growing spontaneously in the lands irrigated by the rising Nile, as soon as its

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[1] Numb. xi. 4, 5. Fish does not appear in the lists of food of the earlier dynasties, although represented in the tombs as caught, sliced, salted, and prepared for food. It was, however, probably not eaten at the period by the richer classes or the sacerdotal order. At the time of the 19th Dynasty many varieties of fish are mentioned: as the *utu*; the *baran* of the river Haru (Halys) or Haruma; the *barai* and *baka*, fish from the Puharta, the Phrat or Euphrates; fish called *atu* from some other river; and *hanata* fish. Many of these were foreign, and introduced as luxuries into Egypt. ('Records of the Past,' vi. p. 14.) The hierarchy appears to have had some prejudice against fish, for the Ethiopian conqueror Pianchi, apparently a religious fanatic, would only admit into his presence Nimrud, king of Hermopolis, because he did not eat fish, and excluded the other princes.—S. B.

waters had subsided; some of which were eaten in a crude state, and others roasted in the ashes, boiled, or stewed: their chief aliment, and that of their children, consisting of milk and cheese,[1] roots,[2] leguminous, cucurbitaceous, and other plants, and ordinary fruits of the country. Herodotus describes the food of the workmen who built the Pyramids to have been the '*raphanus* or *figl*,[3] onions, and garlic;' yet, if these were among the number they used, and perhaps the sole provisions supplied at the government expense, we are not to suppose they were limited to them: and it is probable that lentils, of which it is inferred from Strabo they had an abundance on this occasion, may be reckoned as part, or even the chief article, of their food.

The nummulite rock in the vicinity of those monuments frequently presents a conglomerate of testacea imbedded in it, which in some positions resemble small seeds; and the geographer, imagining them to be the petrified residue of the lentils brought there by the workmen, was led to this observation on the nature of their provisions. That he is correct in supposing lentils to have been a great article of diet among the labouring classes, and all the lower orders of Egyptians, is evident from their repeated mention in ancient authors; and so much attention was bestowed on the culture of this useful pulse, that certain varieties became remarkable for their excellence, and the lentils of Pelusium were esteemed both in Egypt and in foreign countries.[4] Two species of the plant are noticed by Pliny,[5] who shows it to have been extensively cultivated; and this, as well as the constant use of lentils among the peasants at the present day, fully justify the opinion that they constituted a great, and even the principal, part of the aliment of the lower orders at all times.

In few countries were vegetables more numerous than in Egypt; and the authority of ancient writers, the sculptures, and the number of persons employed in selling them at Alexandria, sufficiently attest this fact. Pliny[6] observes that the valley of the Nile 'surpassed every other country in the abundance and spontaneous growth of those herbs which most people are in the

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[1] Diod. i. 87. [Milk, called *arut.t*, was evidently an extensive article of food; cheese, *t'ser*, is also mentioned in the lists. —S. B.]

[2] Diod. i. 80.

[3] Herodot. ii. 125. So called by the modern Egyptians, the *Raphanus sativus*, var. *A. edulis* of Linnæus, mistaken by the learned Larcher for horse-radish, which is not an Egyptian plant. Onions, *hut*, also appear in the lists as eaten.—S. B.

[4] Virg. Georg. i. 228.

[5] Plin. xviii. 12.

[6] Nat. Hist. xxi. 15.

habit of using as food, especially the Egyptians;' and at the time of the Arab invasion, when Alexandria was taken by Amer, the lieutenant of the Caliph Omer, no less than 4000 persons were engaged in selling vegetables in that city.

The lotus, the papyrus, and other similar productions of the land, during and after the inundation, were, for the poor, one of the greatest blessings Nature ever provided for any people; and, like the acorn [1] in Northern climates, constituted perhaps the sole aliment of the peasantry, at the early period when Egypt was first colonised. The fertility of the soil, however, soon afforded a more valuable produce to the inhabitants; and long before they had made any great advances in civilisation, corn and leguminous plants were, doubtless, grown to a great extent throughout the country. The palm was another important gift bestowed upon them: it flourished spontaneously in the valley of the Nile, and if it was unable to grow in the sands of the arid desert, yet wherever water sufficed for its nourishment, this useful tree produced an abundance of dates, a wholesome and nutritious fruit, which might be regarded as a universal benefit, being within the reach of all classes of people, and neither requiring expense in the cultivation, nor interfering with the time demanded for other agricultural occupations.

Among the vegetables above mentioned, is one which requires some observations. Juvenal says they were forbidden to eat the onion,[2] and it is reported to have been excluded from an Egyptian table. The prohibition, however, seems only to have extended to the priests, who, according to Plutarch,[3] 'abstained from most kinds of pulse;' and the abhorrence felt for onions, according to the same author,[4] was confined to the members of the sacerdotal order.

That onions were cultivated in Egypt, is proved from the authority of many writers, as well as from the sculptures; their quality was renowned in ancient as well as modern times; and the Israelites, when they left the country, regretted 'the onions' as well as the cucumbers, the melons, the leeks, the garlic, and the meat[5] they 'did eat' in Egypt. Among the offerings presented to the gods, both in the tombs and temples, onions

[1] Conf. Hor. Serm. I. iii. 100. And J. Pollux, Onom. lib. i. 12, who quotes Xenophon, Anab. 5.

[2] Juv. xiv. 9: 'Porrum et cepe nefas violare et frangere morsu.'

[3] Plut. de Isid. s. 5 and 8.

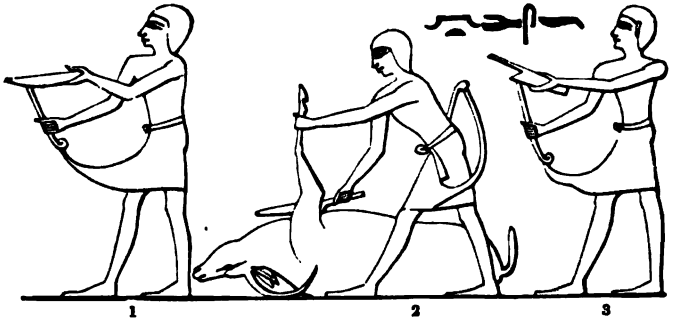
[4] Ibid. s. 8.

[5] Numb. xi. 5; and Exod. xvi. 3, 'In the land of Egypt, when we sat by the flesh-pots, and when we did eat bread to the full.'

are introduced, and a priest is frequently seen holding them in his hand, or covering an altar with a bundle of their leaves and roots.[1] Nor is it less certain that they were introduced at private as well as public festivals, and brought to table with gourds, cucumbers,[2] and other vegetables; and if there is any truth in the notion of their being forbidden, we may conclude it was entirely confined to the priestly order.

The onions of Egypt were mild and of an excellent flavour, and were eaten crude as well as cooked, by persons both of the higher and the lower classes; but it is difficult to say if they introduced them at table like the cabbage, as a *hors-d'œuvre*, to stimulate the appetite, which Socrates recommends in the Banquet of Xenophon. On this occasion some curious reasons for their use are brought forward by different members of the party. Nicerates observes that onions relish well with wine, and cites Homer in support of his remark: Callias affirms that they inspire courage in the hour of battle: and Charmides suggests their utility 'in deceiving a jealous wife, who, finding her husband return with his breath smelling of onions, would be induced to believe he had not saluted anyone while from home.'

In slaughtering for the table, it was customary to take the ox, or whatever animal had been chosen for the occasion, into a



A butcher killing and cutting up an ibex or wild goat; the other two sharpening their knives on a *steel*. The cut in the throat has, however, been omitted in this woodcut.

No. 297. Thebes.

courtyard near the house; to tie its four legs together, and then to throw it upon the ground; in which position it was held by one or more persons, while the butcher, sharpening his broad knife upon a *steel* attached to his apron, proceeded to cut the throat as nearly as possible from one ear to the other, sometimes con-

[1] Vol. i. p. 181, woodcut No. 9.

[2] Called *tenruka*, and said to be as sweet as honey. ('Records of the Past,' vi. p. 16.)—S. B.

tinuing the opening downwards along the throat.[1] The blood was frequently received into a vase or basin for the purposes of cookery,[2] which was repeatedly forbidden to the Israelites by the Mosaic law;[3] and the reason of the explicit manner of the prohibition is readily explained from the necessity of preventing their adopting a custom they had so constantly witnessed in Egypt. Nor is it less strictly denounced by the Mohammedan religion; and all Moslems look upon this ancient Egyptian and modern European custom with unqualified horror and disgust.

The head was then taken off, and they proceeded to skin the animal,[4] beginning with the leg and neck. The first joint removed was the right foreleg or shoulder, the other parts following in succession, according to custom or convenience; and the same rotation was observed in cutting up the victims offered in sacrifice to the gods.[5] Servants carried the joints to the kitchen on wooden trays;[6] and the cook having selected the parts suited for boiling, roasting, and other modes of dressing, prepared them for fire by washing, and any other preliminary process he thought necessary. In large kitchens, the *chef*, or head cook, had several persons under him, who were required to make ready and boil the water of the caldron, to put the joints on spits or skewers,[7] to cut up or mince the meat, to prepare the vegetables, and to fulfil various other duties assigned to them.

The very peculiar mode of cutting up the meat frequently prevents our ascertaining the exact part they intend to represent in the sculptures; the chief joints, however, appear to be the head,[8] shoulder, and leg, with the ribs, tail, or rump, the heart,

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[1] The Israelites sometimes cut off the head at once: Deut. xxi. 4–6. A scene of slaughtering animals is represented in the tomb of Ptahhetep, at Memphis (Duemichen, 'Resultate,' fol. 1809, taf. xi.), with the accompanying hieroglyphic speeches of the butchers. The shoulder, it appears, was first cut off, and was the *satp* or select portion reserved for the priest. The heart was also cut out of the flank, and the butcher who holds it says, 'Take care of this heart,' as if it were an important part. The blood was collected in a jar with a long spout.—S. B.

[2] Woodcut No. 300.

[3] Deut. xv. 23: 'Only thou shalt not eat the blood thereof: thou shalt pour it upon the ground as water.' And xii. 16, 23: 'Be sure that thou eat not the blood: for the blood is the life.' Gen. ix. 4; Levit. xvii. 10, 11, 14, &c.

[4] Herodot. ii. 39.

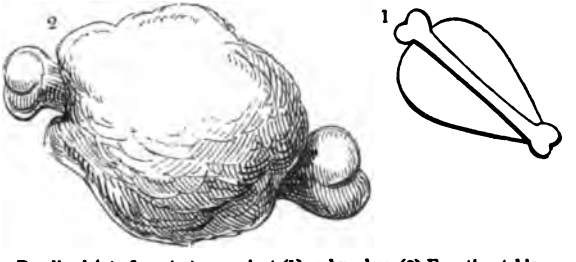
[5] Levit. vii. 32, 34: 'The right shoulder shall ye give unto the priest for an heave-offering of the sacrifices of your peace-offerings. . . . For the wave-breast and the heave-shoulder have I taken . . . from off the sacrifices . . . and have given them unto Aaron the priest.'

[6] Plate XI. vol. i.

[7] Virg. Æn. i. 215.

[8] The joints recorded in the lists are the haunch or shoulder, *χeps'*, called also *satp*, 'the select' or the choice portion; the leg without the knuckle, *ua*; the rib, *sper*; the flank, *speh en sper*; the half leg, *sut*; the heart, *hat* or *ab*; and some other portions not determined, called *neshem*, kidney, and *mast*. Flesh generally was called *af*, and kibobs or slices *as'er*.—S. B.

and kidneys; and they occur in the same manner on the altars of the temple, and the tables of a private house. One is remarkable not only from being totally unlike any of our European joints, but from its exact resemblance to that commonly seen at table in modern Egypt: it is part of the leg, consisting of the flesh covering the tibia, whose two extremities project slightly beyond it: and the accompanying drawing from the sculptures, and a sketch of the same joint taken at a modern table in Upper Egypt, show how the mode of cutting it has been preserved by traditional custom to the present day.[1]



No. 298. Peculiar joint of meat at an ancient (1) and modern (2) Egyptian table.

The head was left with the skin and horns, and was sometimes given away to a poor person as a reward for holding the walking-sticks of those guests who came on foot;[2] in later times, when the Greeks were settled in the country, it was sold to them, or to other foreigners: but it was frequently taken to the kitchen with the other joints; and, notwithstanding the positive assertion of Herodotus, we find that even in the temples themselves it was admitted at a sacrifice, and placed with other offerings on the altars of the gods.[3]

The historian would lead us to suppose that a strict religious scruple prevented the Egyptians of all classes from eating this part, as he affirms, 'that no Egyptian will taste the head of any species of animal,'[4] in consequence of certain imprecations having been uttered upon it at the time it was sacrificed; but as he is speaking of heifers slaughtered for the service of the gods, we

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[1] It frequently appears in the lists of viands mentioned in the tombs of the 4th Dynasty, and was then called *sut*. —S. B.

[2] Plate XI., *fig.* 10.

[3] The head is of a calf, represented on the altar of viands placed before Osiris, along with the haunch, ribs, and other parts; it does not, however, appear amongst the joints in the bills of fare from the 4th to the 12th Dynasties, and by inference, therefore, it was not eaten.—S. B.

[4] Herod. ii. 39.

may conclude that the prohibition did not extend to those killed for table, nor even to all those offered for sacrifice in the temple; and as with the scapegoat of the Jews, that important ceremony was perhaps confined to certain occasions and to chosen animals, without extending to every victim which was slain.

The formula of the imprecation was probably very similar with the Jews and Egyptians. Herodotus says the latter pray the gods, 'that if any misfortune was about to happen to those who offered, or to the other inhabitants of Egypt, it might fall upon that head:' and with the former it was customary for the priest to take two goats and cast lots upon them, 'one lot for the Lord and the other lot for the scapegoat,' which was presented alive 'to make atonement' for the people. The priest was then required to 'lay both his hands upon the head of the live goat, and confess over him all the iniquities of the children of Israel, and all their transgressions in all their sins, putting them upon the head of the goat, and send him away by the hand of a fit man into the wilderness.'[1] The remark of Herodotus should then be confined to the head, on which their imprecation was pronounced, and, being looked upon by every Egyptian as an abomination, it may have been taken to the market and sold to foreigners, or if no foreigners happened to be there, it may have been given[2] to the crocodiles.[3]

An ox and a bird placed entire on the altar. No. 299.

The same mode of slaughtering, and of preparing the joints, extended to all the large animals; but geese[4] and other wild and tame fowl were served up entire, or, at least, only deprived of their feet and pinion joints: fish were also brought to table whole, whether boiled or fried, the tails and fins being removed. For the service of religion, they were generally prepared in the same manner as for private feasts; sometimes, however, an ox was brought entire to the altar, and

[1] Levit. xvi. 8, 21.

[2] Herodotus's words are, 'thrown into the river.' This could only have been in places where crocodiles abounded: it would otherwise have polluted the stream they so highly esteemed. Plutarch says, 'A solemn curse having been pronounced upon the head, it was thrown into the river; this was in former times, but now it is sold to foreigners.' (De Isid. s. 31.)

[3] Ælian observes, 'that the Ombites do not eat the head of any animal they have offered in sacrifices; they *throw it to the crocodiles*.' (De Nat. Anim. lib. x. c. 21.)

[4] They were sometimes decapitated, but are often, as above represented, entire, the whole animal being offered in sacrifice.—S. B.

birds were often placed among the offerings without even having the feathers taken off.

The favourite meats were beef and goose:[1] the ibex, gazelle, and oryx were also in great request; but we are surprised, in a country where mutton is unquestionably lighter and more wholesome, that they should prefer the first two, and even exclude this last from the table.[2] In Abyssinia it is a sin to eat geese or ducks; and modern experience teaches that, in Egypt and similar climates, beef and goose are not eligible food, except in the depth of winter. In Lower Egypt, or, as Herodotus styles it, the corn country, they were in the habit of drying and salting birds of various kinds, as quails, ducks, and others, a process to which I believe the sculptures themselves refer;[3] and fish were prepared by them in the same manner both in Upper and Lower Egypt.[4]

Some joints were boiled, others roasted: two modes of dressing their food to which Herodotus appears to confine the Egyptians, at least in the lower country; but, though there is no positive evidence from the sculptures that they adopted a very artificial kind of cookery, it is highly probable they had made some advances in this as in the other habits of a civilised, I may say luxurious, people, and had at a very remote period passed that state when men are contented with simplicity and primitive habits.[5] And we shall at least feel disposed to allow the Egyptians as much skill in the culinary art as was displayed by Rebekah in the savoury meats she prepared for Isaac, where the disguise was sufficient to prevent his distinguishing the meat of kids from the promised venison.[6]

It is true, that in the infancy of society the diet is exceedingly plain and simple, consisting principally, if not entirely, of roast meats: and as Athenæus observes, the heroes of Homer seldom 'boil their meat, or dress it with sauces;' the few instances, even of the former, which occur in the Iliad,[7] plainly showing how unusual the custom was at the period he describes.

That the Egyptians were in early times immoderately fond of delicate living, or indeed at any period committed those excesses of which the Romans are known to have been guilty, is highly

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[1] Conf. Herodot. ii. 37.

[2] In one of the lists of the 4th Dynasty, the *ab*, either 'the kid' or 'lamb,' is mentioned (Lepsius, Denkm. ii. 21). In Coptic *ab* is 'the lamb,' not 'the kid;' so that if this is the lamb, mutton was occasionally eaten.—S. B.

[3] Woodcut No. 99.

[4] Herodot. ii. 77, and the sculptures.

[5] Bocchoris complained that Menes had taught the Egyptians a luxurious mode of living, even in regard to diet.

[6] Gen. xxvii. 3, 9.

[7] Iliad Φ, 362.

improbable, especially as the example of the priesthood, who constituted a very great portion of the higher classes, tended so much to induce moderation; but even before the close of the 16th Dynasty, or about 1600 B.C., they had already begun to indulge in nearly the same habits as in the later Pharaonic ages; and it appears from Diodorus and Plutarch that their original simplicity gave place to luxury, as early as the reign of their first king Menes.[1] Excesses they no doubt committed, especially in the use of wine, both on private[2] and public occasions,[3] which is not concealed in the sculptures of Thebes: and in later times, after the conquest of Egypt by the Persians, and the accession of the Ptolemies, habits of intemperance increased to such an extent, and luxury became so general among all ranks of society, that writers who mention the Egyptians at that period,[4] describe them as a profligate and luxurious people, given to an immoderate love of the table, and addicted to every excess in drinking. They even used excitants for this purpose, and *hors-d'œuvres* were provided to stimulate the appetite; crude cabbage provoking the desire for wine, and promoting the continuation of excess.[5]

Beyond the usual joints which are seen on the altars and in the hands of the servants, it is impossible to ascertain in what form the meat appeared upon table,[6] or what made dishes and artificial viands the skill of their cooks succeeded in devising; but as a portion of the kitchen is occasionally represented in the tombs, and some details of Egyptian cookery are there given, I shall avail myself of whatever has been preserved, and introduce the most interesting part of those sculptures in the accompanying woodcuts.

The first process, as previously described, was slaughtering the ox, and cutting up the joints, the blood being sometimes caught in a vase, for the purpose of cookery;[7] and joints selected for the purpose were boiled in a large caldron, placed over the fire on a metal stand or tripod. One servant regulated the heat of the fire, raising it with a poker or blowing it with bellows, worked by the feet;[8] another superintended the cooking of the

[1] Diod. i. 45. Plut. de Isid. s. 8.

[2] Athenæus quotes Dion on this subject. (Deipnos. lib. i. 25.)

[3] Herodot. ii. 60.

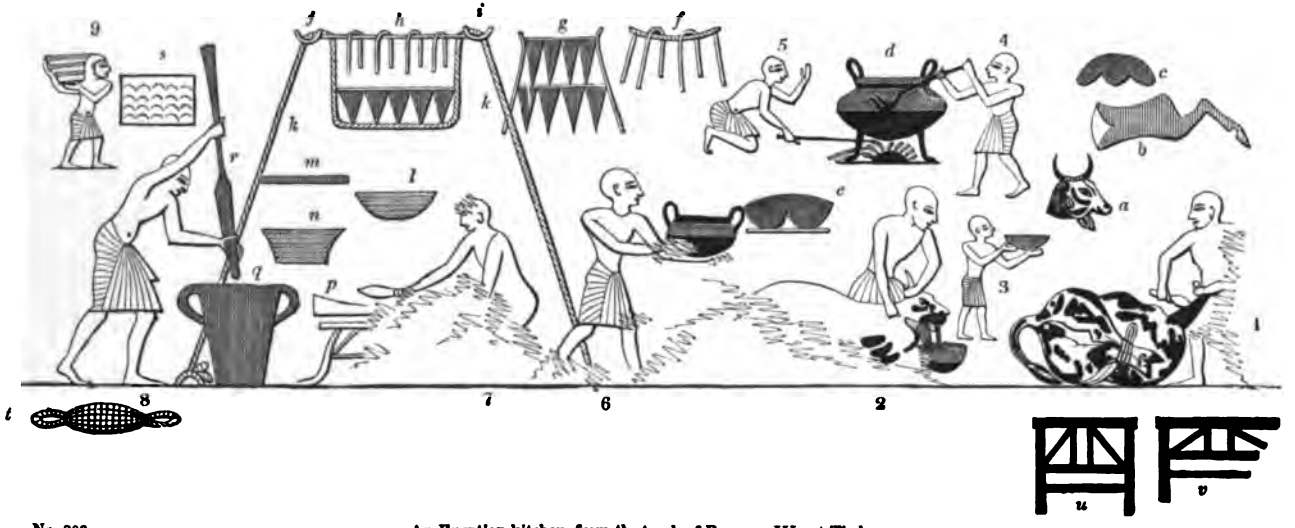
[4] Josephus says the Egyptians (in his time) were abandoned to pleasures. (Antiq. ii. 9.)

[5] Athen. Deipnos. lib. i. 25.

[6] Bread and cakes had several fancy forms, as the pyramid, ring, circular biscuit. A cake in the British Museum, No. 5362, is in shape of the head of a crocodile.—S. B.

[7] Woodcut No. 300, *fig.* 2.

[8] I shall have occasion to notice these hereafter.



No. 300.

An Egyptian kitchen, from the tomb of Rameses III., at Thebes.

Fig. 1. Killing and preparing the joints, which are placed at *a*, *b*, *c*.
2. Catching the blood for the purposes of cookery, which is removed in a bowl by *fig.* 3.
4. and 5. Employed in boiling meat and stirring the fire.
7. Preparing the meat for the caldron, which *fig.* 6 is taking to the fire.
8. Pounding some ingredients for the cook.
f, *h*. Apparently siphons.
i, *j*. Ropes passing through rings and supporting different things, as a sort of safe.
s. Probably plates. *u*, *v*. Tables.

meat, skimming the water with a spoon, or stirring it with a large fork,[1] while a third pounded salt, pepper, or other ingredients in a large mortar, which were added from time to time during this process. Liquids of various kinds also stood ready for use. They were sometimes drawn off by means of siphons,[2] and these appear to be represented upon a rope,[3] supporting the tray which contained the things they wished to raise beyond the reach of rats or other intruders, and which answered the purposes of a safe.

Other servants took charge of the pastry, which the bakers or confectioners had made for the dinner table; and this department, which may be considered as attached to the kitchen, appears even more varied than that of the cook. Some sifted and mixed the flour,[4] others kneaded the paste with their hands,[5] and formed it into rolls, which were then prepared for baking, and, being placed on a long tray or board, were carried on a man's head[6] to the oven.[7] Certain seeds were previously sprinkled upon the upper surface of each roll,[8] and judging from those still used in Egypt for the same purpose, they were chiefly the *Nigella sativa*, or *kamóon aswed*, the *simsim*,[9] and the caraway.

Sometimes they kneaded the paste with their feet,[10] having placed it in a large wooden bowl upon the ground; it was then in a more liquid state than when mixed by the hand, and was carried in vases to the pastrycook, who formed it into a sort of macaroni, upon a flattened metal pan over the fire. Two persons were engaged in this process; one stirred it with a wooden spatula, and the other taking it off when cooked with two pointed sticks,[11] arranged it in a proper place, where the rest of the pastry was kept. This last was of various kinds, apparently made up with fruit, or other ingredients, with which the dough, spread out with the hand, was sometimes mixed, and it assumed the

[1] Woodcut No. 300, *figs.* 4 and 5.

[2] This part of the picture is very much damaged, but sufficient remains to show them using the siphons, which occur again, perfectly preserved, in a tomb at Thebes. They are introduced among the inventions of the Egyptians.

[3] At *h* and *f*.

[4] Woodcut No. 301, *figs.* 13 and 14.

[5] Ibid., *fig.* 15.

[6] As at the present day. Conf. Pharaoh's chief baker, with 'three white baskets on his head' (Gen. xl. 16); and Herodot. ii. 35, 'Men carry loads on their heads, women on their shoulders.' But it was not the general custom. A bronze figure in the British Museum, No. 2281, represents a man kneeling, carrying a basket on his head, in which are four circular loaves of bread quite exposed to the air.—S. B.

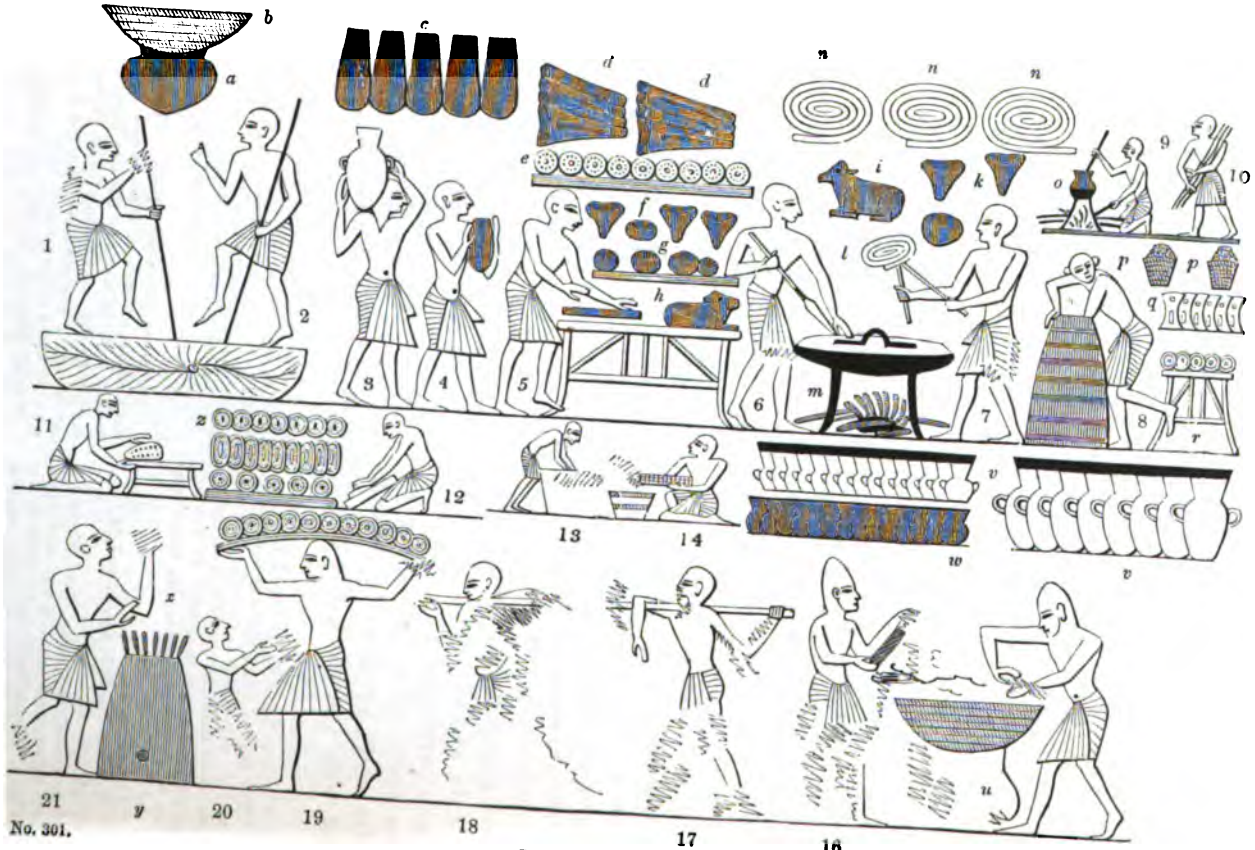
[7] Woodcut No. 301, *figs.* 19 and *x*.

[8] Ibid., *figs.* 11 and *z*, called *ott* by the Egyptians.

[9] *Sesamum orientale*, Linn. [There were many varieties of bread, which was usually made of barley; a circular biscuit, *paut*, with the impression of four fingers on one side; another kind, *pes*; the loaf, *tep*; *ta*, bread in general.—S. B.]

[10] Conf. Herodot. ii. 36, and woodcut No. 301, *figs.* 1 and 2.

[11] Woodcut No. 301, *figs.* 6 and 7, and *l*.



Figs. 1, 2. Kneading the dough with their feet.
3, 4. Carrying it to the confectioner (5), who rolls out the paste, which is afterwards made into cakes of various forms, *d*, *e*, *f*, *g*, *h*. 6, 7. Making a sort of macaroni (*l*, *n*, *n*, *n*), on a pan over the fire, *m*. 8. Preparing the oven.
9. Cooking lentils, which are in the baskets, *p*, *p*. 11, 12. Making cakes of bread sprinkled with seeds. 15, 16. Kneading paste with the hands.
19. Carrying the cakes to the oven, *y*, which is now lighted. At *a*, *b*, the dough is probably left to ferment in a basket, as is now done at Cairo.

Cooks and confectioners.

In the tomb of Rameses III. at Thebes.

shape of a three-cornered cake, a recumbent ox, or other form,[1] according to the fancy of the confectioner. That his department was connected with the kitchen[2] is again shown, by the presence of a man in the corner of the picture engaged in cooking lentils for a soup or porridge;[3] his companion[4] brings a bundle of fagots for the fire, and the lentils themselves are seen standing near him in wicker baskets.[5]

The caldrons containing the joints of boiled meat, which were often of very great size, stood over a fire upon the hearth, supported on stones,[6] having been taken from the dresser,[7] where

No. 302. Cooking geese and different joints of meat. *Tomb near the Pyramids.*

Figs. a a. Joints in caldrons, on the dresser, *b*. *c.* A table.
1. Preparing a goose for the cook (2), who puts them into the boiler, *d*.
3. Roasting a goose over a fire (*e*) of peculiar construction.
4. Cutting up the meat. *i.* Joints on a table.
g. Stewed meat over a pan of fire, or *magoor*.

they were placed for the convenience of putting in the joints; some of smaller dimensions, probably containing the stewed meat, stood over a pan[8] containing charcoal, precisely similar to the *magoor*, used in modern Egypt;[9] and geese, or joints of meat, were roasted over a fire of a peculiar construction, intended solely for this purpose;[10] the cook passing over them a fan[11] which served for bellows. In heating water, or boiling meat, fagots

[1] Woodcut No. 301, *figs. d, f, g, h, i, k.* *f* and *g* appear to have the fruit apart from the pastry. I found some cakes of the form of *f* in a tomb at Thebes, but without any fruit or other addition. Many of different shapes have been found there.

[2] The chief baker of Pharaoh carried in the uppermost basket 'all manner of bake-meats,' not only 'bread,' but 'all kind of food.' (Gen. xl. 17.) Anciently, the cook and baker were the same, with the Romans.

[3] *Fig.* 9. [4] *Fig.* 10. [5] At *p*.
[6] Woodcut No. 302, at *d*.
[7] At *b*. [8] At *c*. [9] At *g*.
[10] At *a*. [11] At *f*.

of wood were principally employed, but for the roast meat charcoal, as in the modern kitchens of Cairo; and the sculptures represent servants bringing this last in mats of the same form as those of the present day. They sometimes used round balls for cooking, probably a composition of charcoal and other ingredients, which a servant is represented taking out of a basket and putting on the stove, while another blows the fire with a fan.[1]

At an Egyptian party the men and women were frequently entertained separately, in a different part of the same room, at the upper end of which the master and mistress of the house sat close together on two chairs, or on a large fauteuil; each guest, as he arrived, presented himself to receive their congratulatory welcome,[2] and the musicians and dancers, hired for the occasion, did obeisance before them, previous to the performance of their part. To the leg of the fauteuil a favourite monkey, a dog, gazelle, or some other pet animal[3] was tied, and a young child was permitted to sit on the ground at the side of its mother, or on its father's knee. In some instances we find men and women sitting together, both strangers,[4] as well as members of the same family;[5] a privilege not conceded to females among the Greeks, except with their relations: and this not only argues a very great advancement in civilisation, especially in an Eastern nation, but proves, like many other Egyptian customs, how far this people excelled the Greeks in the habits of social life. With the Romans it was customary for women to mix in society, and their notions on this head are contrasted by Cornelius Nepos[6] with the scruples of the Greeks, in these words: 'Which of us Romans is ashamed to bring his wife to an entertainment? and what mistress of a family can be shown who does not inhabit the chief and most frequented part of the house? whereas in Greece she never appears at any entertainments except those to which relations are alone invited, and constantly lives in the uppermost part of the house, called *gynæconitis*,[7] the women's apartments, into which no man has admission, unless he be a near relation.'

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[1] The same kind of fan was used by the Greeks and Romans. It is represented in the paintings of Herculaneum.

[2] Plate XI.

[3] Ibid. The cat and cynocephalic apes are sometimes represented; the monkey, with its name *qaf*, is as old as the 4th Dynasty, and its name, found in the Latin *cēb-us*, shows that the appellation found in the account of the produce brought by the ships of Solomon, was not of Aryan derivation. Birds do not appear to have been pets or favourites.—S. B.

[4] They may be married couples.

[5] Woodcut No. 303.

[6] Cornel. Nepos, Præfat. in Vit. Imperatorum, *ad fin.*

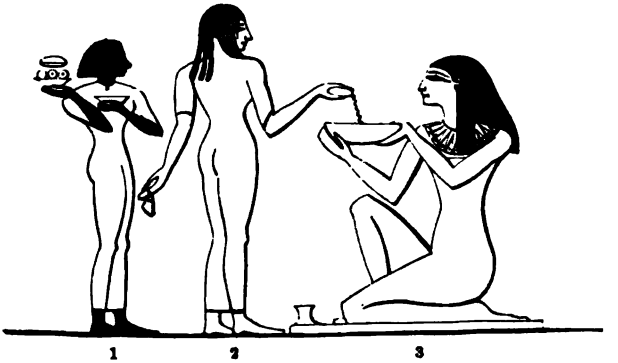
[7] Answering to the *harēem* of the East.

Wine, as I have already observed, was presented both to matrons and maidens at an Egyptian feast; and they were waited upon by handmaids and female slaves, as the men were attended by footmen and men slaves. An upper maid-servant, or a white

Figs. 1 and 2, 4 and 5, 6 and 7, 8 and 9. Men and women seated together at the feast.
10, 11, 12. Women singing and clapping their hands to the sound of the double pipe, 13.
16. Vases on stands, stoppered with beads of wheat, and decked with garlands.
A party of guests entertained with music and the dance.
3. A servant offering a cup of wine.
14, 15. Dancing women.
From Thebes, and now in the British Museum.
No. 363.

slave, had the office of handing the wine, or whatever refreshment was offered them, and a black woman followed her, in an inferior capacity, to receive an empty cup when the wine had been poured from it into the goblet, or to bring and take away what it was the privilege of the other to present. The same

black slaves brought the dishes as they were sent from the kitchen; and the peculiar mode of holding a plate with the hand reversed, so generally adopted by women from the interior of Africa, is characteristically portrayed in the paintings of a tomb at Thebes, given in the accompanying woodcut. To each person,



No. 304. A black and a white slave waiting upon a lady at a party. *Thebes.*

after drinking, a napkin was presented for wiping the mouth, answering to the *máhrama* of the modern Egyptians and other Eastern people; and the servant who held it on his arm while the person was drinking, probably uttered a complimentary wish as he proffered it, and received the goblet:[1] for the custom of saying, 'May it benefit you,' or some similar phrase, being so general throughout the East, we cannot but suppose that it was adopted by the ancient Egyptians, and that the mode of welcoming a stranger with salt, the emblem of hospitality, was common to them, as to the Romans and other people of antiquity.

That dinner was served up at mid-day may be inferred from the invitation given by Joseph to his brethren,[2] but it is probable that, like the Romans, they also ate supper in the evening, as is still the custom in the East. The table was very similar to that of the present day in Egypt, which is a small stool, supporting a round tray on which the dishes are placed, and it only differed from this in being raised upon a single leg, like many of those used for bearing offerings in the sacred festivals of their temples.

In early times the Greeks as well as Romans had similar

[1] Woodcut No. 305, *fig.* 12.

[2] Gen. xliii. 16: 'Bring these men home, and slay, and make ready; for these men shall dine with me at noon.' The Hebrew expression 'slay,' טְבֹחַ טָבֵחַ, is the same as the Arabic *edbah dabeēh*, 'kill a killing.'

round tables,[1] in imitation, as some imagine, of the spherical shape of the world;[2] and, occasionally, each guest had a table to himself:[3] but from the mention of persons sitting in rows, according to rank, it has been supposed that they were of a long figure,

No. 385. A party of guests, to whom wine, ointment, and garlands are brought. *From Thebes, and now in the British Museum.*

Fig. 1. A maid-servant presenting a cup of wine to a gentleman and lady, seated on chairs with cushions, probably of leather.
4. Another holding a vase of ointment and a garland.
5 presents a lotus flower; and 9, a necklace or garland, which he is going to tie round the neck of the guest, 10.
12. A female attendant offering wine to a guest; in her left hand is a napkin, *t*, for wiping the mouth after drinking.
The tables, *a*, *f*, have cakes of bread, *c*, *r*; meat, *d*, *q*; geese, *n*, and other birds, *m*; figs, *e*, *k*; grapes in baskets, *h*; flowers, *p*; and other things prepared for the feast: and beneath them are glass bottles of wine, *b*, *g*.

[1] Whence called *orbes* by the Romans. (Juv. Sat. i. 137. Plin. xiii. 15.)

[2] Myrleanus in Athen. lib. xi. c. 12.

[3] Athen. i. 8.

which may sometimes have been the case in Egypt, even during the Pharaonic ages, since the brethren of Joseph 'sat before him, the firstborn according to his birthright, and the youngest according to his youth,'[1] Joseph himself eating alone at another table.[2] It is not, however, certain that the table in this instance was long, or in any way different from their usual round table, since persons might, even then, be seated according to their rank, and the modern Egyptian table is not without its post of honour, and a fixed gradation of place. No tray was used on the Egyptian table, nor was it covered by any linen;[3] like that of the Greeks, it was probably wiped with a sponge[4] or napkin after the dishes were removed, and polished by the servants[5] when the company had retired.

There has long been a question respecting the custom of reclining at meals, and its first introduction among the Greeks and Romans. Some have supposed that it came directly to Greece from Asia, and to Rome after the conquest of Carthage and Asia Minor; but it appears rather to have been gradually introduced, than borrowed at any particular time from a foreign people. With great reason, however, we may believe that the custom originated in Asia;[6] and the only notice of it among the Greeks in early times is found in sacred subjects, where the deities are represented reclining on couches,[7] evidently with a view to distinguish their habits from those of ordinary mortals. But when luxury increased, and men, 'inflated,' as Aristotle observes, 'with the pride of victory, laid aside their previous discrimination,' new modes of indulgence were devised, their former simplicity was abandoned, and customs were introduced which their ancestors considered suited to the gods alone.

That they derived their ideas respecting the use of couches from a positive custom is certain, since all notions about the habits of the deities could only be borrowed from human analogies; we may therefore safely ascribe to it a foreign origin, though not introduced at once, or merely adopted in imitation of an Eastern custom. The principal person at a festival is often described as having reclined, while the others sat on chairs or on

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[1] Gen. xliii. 33.

[2] Gen. xliii. 32: 'And they set on for him by himself.'

[3] Table-cloths were unknown in Rome until the time of the Emperors (Mart. xii. 9, 12).

[4] Homer, Od. A, 112.

[5] Whether of stone or wood. Polished wood is frequently found in the tombs of Thebes.

[6] Æneas and the Trojans reclined. (Virg. Æn. i. 700.)

[7] The *lectisternia* of the Romans.

the ground. At the Roman *fête* of the *Epulum Jovis*, Jupiter reposed on a couch, while the other deities were seated; and, in Macedonia, no one could recline at meals till he had killed a boar without the help of nets. It was therefore, originally, a mark of honour and distinction, and sometimes confined to men; but in process of time it became general, and was afterwards adopted by all ranks. For we have evidence from many ancient authorities, that in early times neither the Greeks nor Romans reclined at meals. Homer's heroes[1] sat on the ground, or on chairs; Virgil,[2] Tacitus, Ovid,[3] Philo, and others mention the same primeval custom; and Suetonius[4] says that even the grandchildren of Augustus 'always *sat* at the end of the couch when they supped with him.'[5]

The ordinary Egyptian round table was similar to the *monopodium* of the Romans,[6] and, instead of the movable tray used by the modern Egyptians, its circular summit was fixed to the leg on which it stood; which, as I have before observed, frequently presented the figure of a man, generally a captive, who supported the slab upon his head, the whole being either of stone or some hard wood. On this the dishes were placed, together with loaves of bread,[7] some of which were apparently not unlike those of the present day, flat and round,[8] as our crumpets, and others in the form of rolls or cakes, sprinkled with the seeds before noticed.

In the houses of the rich, bread was made of wheat, the poorer classes being contented with barley and flour of the *sorghum*;[9] for Herodotus, as I have had occasion to observe in a former work,[10] has been guilty of an error in stating[11] that it was considered among the Egyptians 'the greatest disgrace' to live on wheat and barley, and that 'they therefore made their bread of

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[1] Homer, Od. A, 108, &c.

[2] Virg. Æn. i. 176: 'Soliti patres considere mensis.'

[3] Ovid. Fast. vi. 305.

[4] Suet. Aug. c. 64: 'Neque cœnavit unà, nisi in imo lecto *adsiderent*.'

[5] The married woman amongst the Assyrians and Greeks sat on a chair at the foot of the couch on which the husband reclined, even in the late period of the Roman Empire, it being immodest to lie on a couch with a man, although the Roman ladies did so, as alluded to by Ovid. The Egyptians are never represented reposing on couches, and the Greek custom was probably derived from some of the other nations, perhaps Semitic, and of Asia Minor.—S. B.

[6] Juv. Sat. xi. 122.

[7] 'To set on bread' was the expression used, as at present, in Egypt, for bringing dinner (Gen. xliii. 31). It is singular that *lahm* should signify, in Hebrew, 'bread;' and, in Arabic, 'meat.'

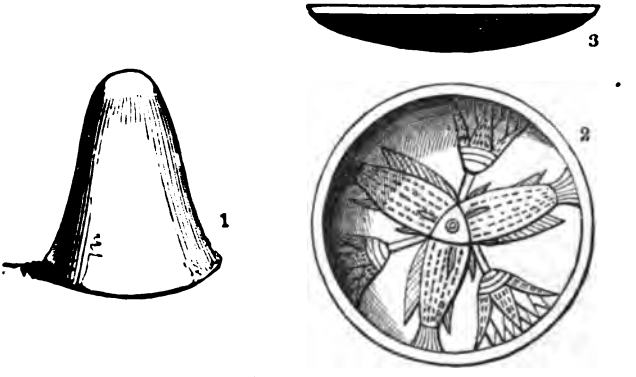
[8] These retain the form of the old 'cakes' baked 'upon the hearth' (Gen. xviii. 6), which are so generally used at this day by the Arabs of the desert, without leaven. The bread of Upper Egypt is more like the ancient Egyptian cake.

[9] *Holcus sorghum*, Linn.

[10] 'Egypt and Thebes,' p. 213.

[11] Herod. ii. 36.

the *olyra*,[1] which some call *zea*.'[2] It is doubtful whether the historian had in view the *Triticum zea*, which is now no longer grown in Egypt, or the sorghum,[3] the *doura* of the present day; but it is probable that he gives the name of *olyra* to this last: and that it was grown in ancient times in Upper and Lower Egypt, particularly about the Thebaïd, is evident from the sculptures, though not in the same quantity as wheat. So far, however, were the Egyptians from holding wheat and barley in abhorrence, that they cultivated them abundantly throughout the whole valley of the Nile,[4] offered them to the gods, and derived from them a great part of their sustenance, in common with whatever other corn the soil produced; and I fear that this, and his asser-



No. 306. Drinking-cups.

Fig. 1. An alabaster beaker, inverted, in the Museum of Alnwick Castle.
2. A saucer or cup of blue glazed pottery, in the Berlin Collection.
3. Side view of the same.

tion respecting the exclusive use of brazen drinking-cups,[5] prove Herodotus not to have lived in the best society during his stay in Egypt.[6]

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[1] Pliny (xviii. 7) says, 'Far in Ægypto ex olyra conficitur;' but not to the exclusion of any other grain; and we find in the same author, 'Ægyptus . . . e tritico suo.' He also observes, that the olyra had been supposed the same as rice, 'olyram et oryzam eandem esse existimant;' and afterwards (c. 8) distinguishes it from the zea, with which Herodotus has confounded it. Homer feeds horses on the olyra, as well as wheat and barley; which last is now given them in the East. (Homer, Il. E, 196.)

[2] Bearing no relation to the *Zea mays*, or Indian corn.

[3] The Assyrian wheat and barley, he affirms, had 'leaves four fingers in breadth,' from which it has been conjectured that he there (lib. i. 193) alludes to the sorghum; but the expression 'wheat and barley' renders this very questionable.

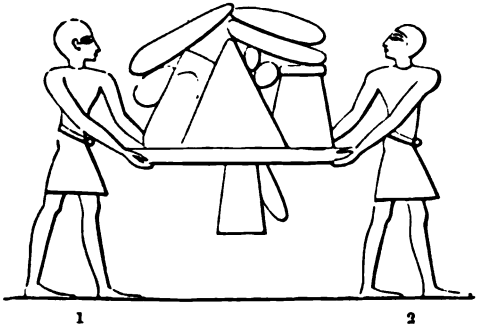
[4] Witness the sculptures, and Exod. ix. 31, 32: 'The barley was smitten . . . . the wheat and the rye were not smitten; for they were not grown up.' Wheat in Egypt is about a month later than barley.

[5] Herodot. ii. 37.

[6] If Herodotus had travelled, a few years ago, in the north of our island, he might, perhaps, have made a similar remark about the English and oat cakes.

The drinking-cups of the Egyptians, as I have already observed, were of gold, silver, glass, porcelain, alabaster, bronze, and earthenware.

They varied greatly in their forms: some were plain and unornamented; others, though of small dimensions, were made after the models of larger vases; many were like our own cups without handles; and others may come under the denomination of beakers and saucers. Of these the former were frequently made of alabaster, with a round base, so that they could not



No. 307. The table brought in with the dishes upon it. *Tombs near the Pyramids.*

stand when filled, and were held in the hand, or, when empty, were turned downwards upon their rim: and the latter, which were of glazed pottery, had sometimes lotus or fish represented on their concave surface, which, when water was poured into the cups, appeared to float in their native element.[1]

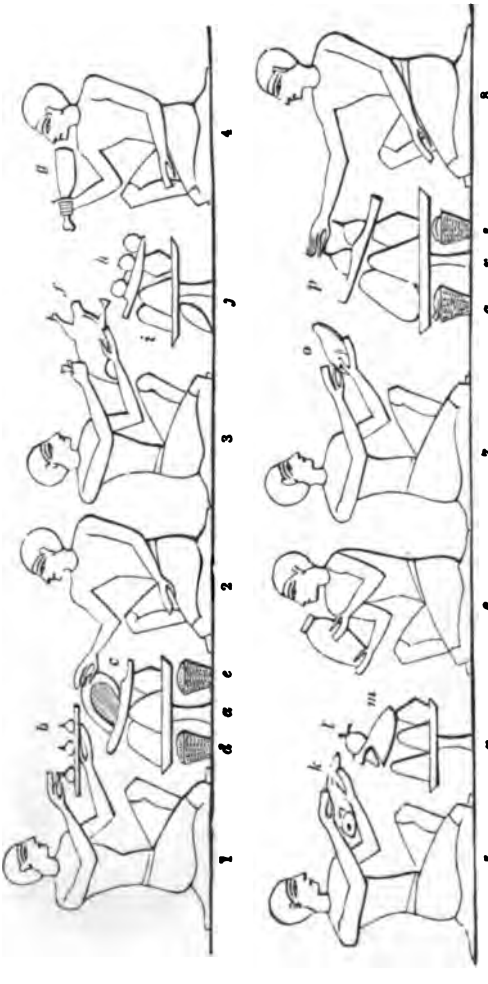
No. 308. A cake of preserved dates, found at Thebes. At *a* is a date-stone.

The tables, as at a Roman repast, were occasionally brought in and removed[2] with the dishes on them; sometimes each joint was served up separately, and the fruit, deposited in a plate or trencher, succeeded the meat at the close of dinner; and in less fashionable circles, particularly of the olden time, it was brought in baskets which stood beside the table. The dishes consisted of fish; meat boiled, roasted, and dressed in various ways; game, poultry, and a profusion of vege-

[1] Woodcut No. 306, *fig.* 2. *Vide* also the spoon in woodcut No. 285.

[2] Woodcut No. 307. Conf. Virg. Æn. i. 723.

tables and fruit, particularly figs and grapes, during the season; and a soup, or pottage of lentils,[1] as with the modern Egyptians, was not an unusual dish. Of figs and grapes they were particularly fond, which is shown by their constant introduction



No. 309. A dinner-party. *Tombs near the Pyramids.*

a, j, m, r. Tables with various dishes.
b, p. Figs.
d, e, q, s. Baskets of grapes.
f-g. 3 is taking a wing from a goose.
4 holds a joint of meat.
5 and 7 are eating fish.
6 is about to drink water from an earthen vessel.
l is the *fgh*, or *rephaum*.

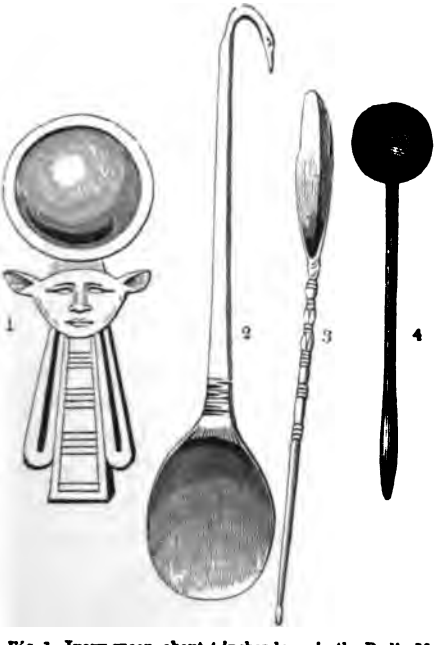
even among the choice offerings presented to the gods; and figs of the sycamore must have been highly esteemed, since they were selected as the heavenly fruit, given by the goddess Netpe[2] to those who were judged worthy of admission to the regions of

[1] Gen. xxv. 34: 'Jacob gave Esau bread and pottage of lentiles.'

[2] Or Nut, the goddess of the ether or firmament.—S. B.

eternal happiness. Fresh dates during the season, and in a dried state at other periods of the year, were also brought to table, as well as a preserve of the fruit, still so common in the country,[1] some of which I have found in a tomb at Thebes, made into a cake of the same form as the tamarinds now brought from the interior of Africa, and sold in the Cairo market.

The guests sat on the ground, or on stools and chairs; and having neither knives and forks, nor any substitute for them



No. 311. Of wood. *British Museum.*

Fig. 1. Ivory spoon, about 4 inches long, in the Berlin Museum, found with the vases of woodcut No. 206.
2. Bronze spoon, 8 inches in length.
3, 4. Bronze spoons found by Burton at Thebes. No. 310.

answering to the chopsticks of the Chinese, they ate with their fingers, as the modern Asiatics, and invariably with the right hand.[2] Spoons were introduced at table when soup or other liquids required their use, and, perhaps, even a knife[3] was

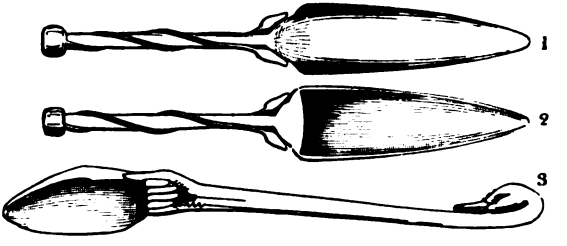
[1] The *ta nebs*, 'bread of dates,' of the lists.—S. B.

[2] And also the Romans and Jews, and most nations of antiquity. The fork, *ligula*, was introduced late under the Roman Empire; it had only two prongs. Several silver ones have been lately found in Rome, and a bronze one at Kouyunjik. —S. B.

[3] Knives were used by the Romans at table (Juv. Sat. xi. 133); though they ate with their fingers, whence 'manus unctæ' (Hor. Ep. i. 16, 23).

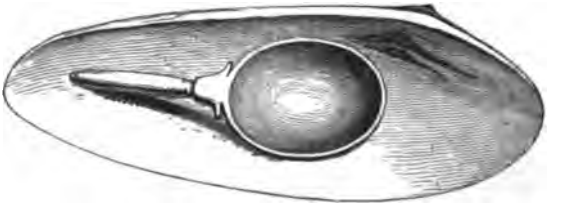
employed on some occasions, to facilitate the carving of a large joint, which is sometimes done in the East at the present day.

The Egyptian spoons were of various forms and sizes, according to the purposes for which they were intended. They were principally of ivory, bone, wood, or bronze, and other metals;



Figs. 1, 2. Front and back of a wooden spoon.
No. 312. 3. Ivory spoon. *British Museum.*

and in some the handle terminated in a hook, by which, if required, they were suspended to a nail.[1] Many were ornamented with the lotus flower; the handles of others were made to represent an animal or a human figure; some were of a very arbitrary shape; and a smaller kind of a round form, probably intended for taking ointment out of a vase and transferring it to a shell or cup for immediate use, are occasionally discovered in the tombs of Thebes. One in the Museum of Alnwick Castle is a perfect



No. 313. Alabaster shell and spoon. *Museum of Alnwick Castle.*

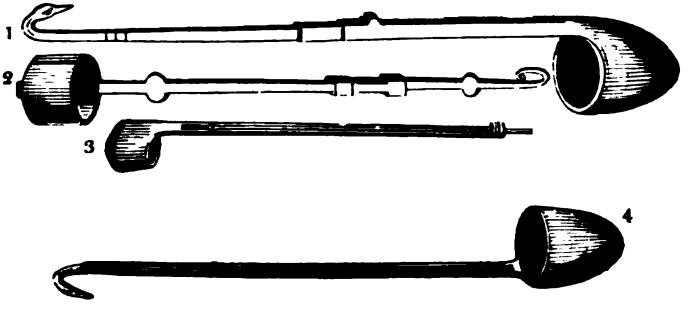
specimen of these spoons, and is rendered more interesting from having been found with the shell, its companion at the toilet table.[2]

Simpula or ladles were also common, and many have been found at Thebes. They were of bronze, frequently gilt, and the curved summit of the handle, terminating in a goose's head, a favourite Egyptian ornament, served to suspend them at the side

[1] Woodcut No. 310, *fig.* 2.

[2] Woodcut No. 313.

of a vessel after having been used for taking a liquid from it; and, judging from a painting on a vase in the Naples Museum, where a priest is represented pouring a libation from a vase with the simpulum, we may conclude this to have been the principal purpose to which they were applied. The gilding may either have been purely ornamental, or intended to prevent the noxious effect of wine, or other acid liquid, after being left in contact with it.[1] The length of the one in my possession is eighteen



Figs. 1, 2. Bronze simpula, in the Berlin Museum.
3. Of hard wood, in the same Museum.
4. Bronze simpulum, 1 foot 6 inches long. It has been gilt.

No. 314.

inches, and the lower part or ladle nearly three inches deep, and two and a half in diameter: but many were much smaller, and some were perhaps of a larger size.

Some simpula were made with a joint or hinge in the centre of the handle, so that the upper half either folded over the other,[2] or slid down behind it;[3] the extremity of each being furnished with a bar which held them together, at the same time that it allowed the upper one to pass freely up and down. Two of these are preserved in the Berlin Museum, where they have also a ladle of hard wood[4] found with the case of bottles, which, as I have elsewhere observed, either belonged to a doctor, or to a lady's toilet table. It is very small; the lower part, which may be properly called the handle, being barely more than five inches long, of very delicate workmanship; and the sliding rod, which rises and falls in a groove extending down the centre of the handle, is about the thickness of a needle.

[1] They are the Greek *kuathos*, and were dipped into the *krater*. Their age is doubtful, as they are not represented at a later period. The handle slid up and down.—S. B.

[2] Woodcut No. 314, *fig.* 1.

[3] Ibid. *fig.* 2.

[4] Ibid. *fig.* 3.

Small strainers or colanders of bronze have also been found at Thebes, but seldom more than five inches in diameter, one of which is in the British Museum, with several other utensils.[1]

That they washed after as well as before dinner, we may be allowed to conclude from the invariable adoption of this custom throughout the East, and among most nations of antiquity, as the Greeks,[2] Romans,[3] Hebrews,[4] and others: nor can we for a moment suppose that a people peculiarly prepossessed in favour of repeated ablutions, would have neglected so important an act of cleanliness and comfort; and Herodotus[5] speaks of a golden basin, belonging to Amasis, which was used by the Egyptian monarch, and 'the guests who were in the habit of eating at his table.'[6]

The heat of a climate like that of Egypt naturally pointed out the necessity of frequent ablutions, and inclined them to consider the use of water an agreeable indulgence: and we frequently find many of the modern natives, who are not obliged by a religious prejudice to observe the custom of washing at meals, as particular in this respect as the Moslems themselves.[7]

The Greeks, at a remote period of their history, were not so scrupulous in these matters, and were contented to wipe their fingers, after meals, on pieces of bread-crumb (*apomagdaliai*), which they threw to the dogs;[8] but it is probable that the refreshing habits of cleanliness always existed in Egypt, even when society was in its earliest stage. In later times the Greeks used an absorbent to scour the hands, for which purpose nitre and hyssop[9] were employed; and though we have no evidence of its prevailing among the Egyptians, we may infer they had a

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[1] It is a mere model or toy of a table, No. 5315, with various shaped vases, all models or toys, and of small proportions.—S. B.

[2] Xenophon, Symposium, : 'After they had done washing and anointing, as was the custom before meals.' Hom. (Od. Δ, v. 52) mentions the use of water before meals; and Aristophanes, in the 'Wasps,' speaks of the custom, after eating.

[3] Virg. Æn. i. 701, and Georg. iv. 377.

[4] The Pharisee 'marvelled that he had not first washed before dinner.' (Luke xi. 38.)

[5] Herod. ii. 172. He calls it a foot-basin, ποδανιπτῆρ.

[6] A gold patera given by Thothmes III. to a royal scribe named Tahuti for his services, in the Museum of the Louvre, has been published in 'Mémoires de la Société des Antiquaires de France,' t. xxiv. 8vo. Paris, 1858.—S. B.

[7] I allude to the Copts of Cairo: I cannot, however, say that the monks of their convents are always so scrupulous or so cleanly, mistaken zeal leading them to construe the censure pronounced by Christ against the Pharisees, into a prohibition.

[8] Whence they were called κυνὰς by the Lacedæmonians.

[9] Conf. Psalm li. 7. The Jews only used it as a sprinkler (Numb. xix. 18).

similar custom, and, from lupins having been so long adopted in the country for the same purpose, that the *doqáq*[1] of modern Egypt is an old invention, handed down to and imitated by the present inhabitants.

Soap was not unknown to the ancients, and a small quantity has even been found at Pompeii. Pliny[2] mentions it as an invention of the Gauls, and says it was made of fat and ashes; and Aretæus, the physician of Cappadocia, tells us, that the Greeks borrowed their knowledge of its medicinal properties from the Romans. But there is no evidence of soap having been used by the Egyptians; and if accident had discovered something of the kind, while they were engaged with mixtures of natron or potash and other ingredients, it is probable that it was only an absorbent, without oil or grease, and on a par with steatite or the argillaceous earths, with which, no doubt, they were long acquainted.

We know that this scrupulously religious people were never remiss in evincing their gratitude for the blessings they enjoyed, and in returning thanks to the gods for that peculiar protection they were thought to extend to them and to their country, above all the nations of the earth. It cannot, therefore, be supposed that they would have omitted a similar acknowledgment previous to and after meals;[3] and even if the impulse of their own feelings had not dictated its propriety, the assiduous zeal of their spiritual pastors, who omitted nothing which could inspire the people with due respect for the Deity, would not have failed to impose upon them so important a duty. But on this point there is no need of conjecture: Josephus expressly states that the custom of saying grace before meals was practised by the Egyptians; and when the seventy-two elders were invited by Ptolemy Philadelphus to sup at the palace, Nicanor requested Eleazar to say grace for his countrymen, instead of those Egyptians to whom that duty was committed on other occasions.[4] The Greeks, and other nations of antiquity, offered a part of what they were about to eat as *primitiæ*, or first fruits,[5] to the

[1] Pounded lupins, purposely prepared for washing the hands after eating. *Termes* is the name of the lupin in Arabic, and the ancient Egyptian, or Coptic, word is θέρμος.

[2] Pliny, xxviii. 12.

[3] The Moslems, before eating, say 'Besmillah,' or 'Besm Allah e'rahman e'raheem,' 'In the name of the kind and merciful God.' On rising from table, each repeats the 'El hamdoolillah,' 'Praised be God.' From this use of the word *besmillah*, they say, 'Besmillah māna,' 'Will you in the name of God (*i.e.* eat) with us?'

[4] Joseph. Antiq. xii. 2, 12.

[5] Hom. Il. K, 219; Odyss. I, 231. Athen. iv. 27.

gods; and it is probable that, besides a thanksgiving, the religious Egyptians commenced their repasts with a similar ceremony.

We cannot suppose that this people were so addicted to the pleasures of the world,[1] as to depreciate in their conviviality all moral and religious feelings, or to have been more disposed than the generality of men on similar occasions to forget futurity in the pleasures of the moment, though this has been frequently urged against the Egyptians; and because they were guilty of excesses[2] at the table, some have not scrupled to consider them immoral and depraved. But if they were fond of luxury, and all the mirth in which a lively people naturally indulge; if they banished religious thoughts during the hour of festivity, and allowed themselves to give way to occasional intemperance, it is unjust to throw the stigma of immorality upon the whole nation; and few civilised communities of modern Europe would desire to be judged with the same severity.

It was a custom of the Egyptians, during (or according to Herodotus after) their repasts, to introduce a wooden image of Osiris,[3] from one foot and a half to three feet in height, in the form of a human mummy, standing erect, as Plutarch informs us, in a case, or lying on a bier, and to show it to each of the guests,[4] warning him of his mortality, and of the transitory nature of human pleasures. He was reminded that some day he would be like that figure; that men ought 'to love one another, and avoid those evils which tend to make them consider life too long, when in reality it is too short;' and while enjoying the blessings of this world, to bear in mind that their existence was precarious, and that death, which all ought to be prepared to meet, must eventually close their earthly career.[5] Thus, while the guests

[1] Josephus says, 'The Egyptians are a peevish, lazy set of people, abandoned to their pleasures, and their very souls set upon profit, let it come which way it will.' (Antiq. ii. 9.) This was in the late age of Vespasian, when they were a very different people from the Egyptians of a Pharaonic period, and no longer a nation.

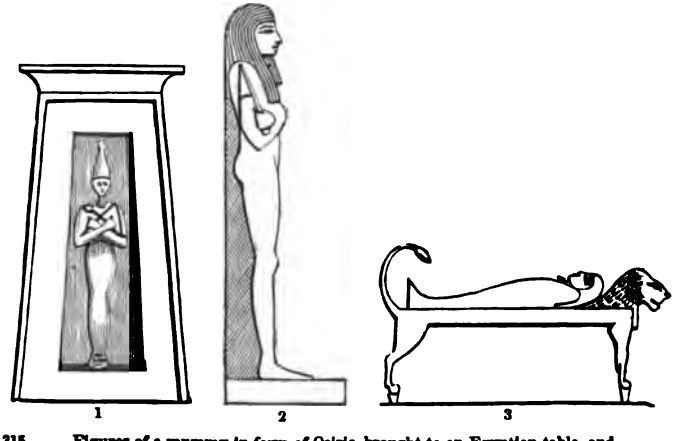
[2] The Romans, under the emperors, committed unheard-of excesses. Seneca says, 'Vomunt ut edant, edunt ut vomant.'

[3] The Egyptians made their mummies in the form of Osiris, and the deceased, as soon as he had passed the ordeal of his final judgment, was admitted into the presence of the deity, whose name was then prefixed to his own.

[4] Herodot. ii. 78. Plut. de Isid. s. 15; and Sept. Sapient. Conv. p. 153. Dr. Young, Hier. Lit. p. 104.

[5] Several small mummied figures of stone, clay, or wood, placed in model sarcophagi or coffins of the same material, have been supposed either to be these figures, or else embalmers' models. The figures or coffins have generally the 6th chapter of the Ritual or Book of the Dead inscribed upon them. Several are in the British Museum. ('Synopsis of the Contents of the Museum: First and Second Egyptian Rooms,' 8vo. Lond., 1874, p. 84.)—S. B.

were permitted, and even exhorted to indulge in conviviality, the pleasures of the table, and the mirth so congenial to their lively disposition, the prudent solicitude of the priests did not fail to watch over their actions, and, by this salutary hint, to show them the propriety of putting a certain degree of restraint upon their conduct; and by avoiding any indiscreet prohibition of those amusements in which men will indulge, in spite of mistaken zeal (too often dictated by a mind devoid of experience, and frequently of sincerity), these guardians of morality obtained the object they had in view, without appearing to interfere.



No. 315. Figures of a mummy in form of Osiris, brought to an Egyptian table, and shown to the guests.

If, as was necessarily the case, all the guests were not impressed with the same feelings, by the introduction of this moral sentiment, the custom was not thereby rendered in any degree objectionable, since a salutary lesson neglected loses not its merit: and however it may have been corrupted by others, who adopted the external form without the true feeling of the original, it must be confessed that the object was good and deserving of commendation. Perverted by the Greeks, this warning of the temporary pilgrimage of man served as an inducement to enjoy the pleasures of life while in this world, as if death closed the scene and no prospect was held out of a future existence; a notion directly at variance with the maxims of the Egyptians, and the constant mindfulness they were exhorted to cherish of an hereafter: and we find that the Greeks advocated the principle 'Live while you may' with unblushing earnestness. The beauties of

poetry[1] were summoned to assist in its recommendation, and every lover of excess welcomed and adopted it, with sentiments evincing the same spirit as the exhortation of Trimalchio; which is thus given by Petronius Arbiter: 'To us, who were drinking and admiring the splendour of the entertainment, a silver model of a man was brought by a servant, so contrived that its joints and movable vertebræ could be bent in any direction. After it had been produced upon the table two or three times, and had been made, by means of springs, to assume different attitudes, Trimalchio exclaimed, "Alas, unhappy lot, how truly man is nought! Similar to this shall we all be, when death has carried us away: therefore while we are allowed to live, let us live well."'[2]

The same sentiments were used by the Jews in the time of Solomon, and 'the ungodly' of his time thus expressed themselves: 'Our life is short and tedious, and in the death of a man there is no remedy: neither was there any man known to have returned from the grave. For we are born at all adventure, and we shall be hereafter as though we had never been, . . . come on, therefore, let us enjoy the good things that are present, . . . let us fill ourselves with costly wine and ointments; and let no flower of the spring pass by us: let us crown ourselves with rosebuds, before they be withered; let none of us go without his part of our voluptuousness; let us leave tokens of our joyfulness in every place.'[3]

The intent, however, of this custom, with the Egyptians, was widely different; and even if from long habit, and the increase of luxurious manners, the good warning it was intended to convey was disregarded, or failed in its effect, still the original intention was good, and cannot, in justice, be condemned as tending to immorality: and though Herodotus, who merely says that the guests were requested to 'observe that man, whom they would all resemble after death,' and were exhorted 'to drink and enjoy themselves,' omits to inform us if it was designed to inculcate a

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[1] Anacreon, Od. 4. Hor. Od. ii. 3, 13. With this may be compared the translation given of the tomb of Sardanapalus at Tarsus; and something of the same kind and tone is found on the tablet of Pasherienptah from Memphis, made in the reign of Cleopatra and Cæsarion.—S. B.

[2] Petron. Satyric. c. 34, *ad fin.* These neurospasts or marionettes are not uncommon. Several, supposed to be dolls made of painted terra-cotta, have been found in the sepulchres of Athens. Bronze neurospasts are also in Egyptian collections, and the same may have suggested the silver model of Trimalchio. This idea of mingling sadness with mirth, the image of death with that of life, has prevailed at all times and periods. The image of death in more recent times has been the skull or the skeleton.—S. B.

[3] Book of Wisdom ii. 1, *et seq.* Conf. Eccles. ii. 24; Isaiah xxii. 13, and lvi. 12; Luke xii. 19; and 1 Cor. xv. 32.

moral lesson, Plutarch expressly asserts this, and removes all doubt respecting the object they had in view. The idea of death among the ancients was less revolting than among Europeans and others at the present day; and so little did the Egyptians object to have it brought before them, that they even introduced the mummy of a deceased relative at their parties, and placed it at table as one of the guests—a fact which is recorded by Lucian [1] in his 'Essay on Grief,' and of which he declares himself to have been an eye-witness.

After dinner, music and singing were resumed; men and women performed feats of agility, swinging each other round by the hand, or throwing up and catching the ball; and the numerous tricks of jugglers, both in the house and out of doors, were introduced to amuse the company.

Part of a similar scene at a Greek entertainment is described in the 'Banquet' of Xenophon. A little boy, two dancing girls, and a jester named Philip, were present on that occasion, and one of the former began by displaying her skill in throwing up her cymbals and catching them, to the tune of a flute played by her companion. A hoop was then brought, round which a number of swords were fixed, and the same dancing girl jumped in and out of the hoop with perfect confidence, and, without receiving any injury, afforded infinite delight and satisfaction to the guests; and gave occasion to Socrates, who was present, to make some general remarks on the courage of women, and to observe that they 'are capable of learning anything you will they should know.' Then standing upright, she bent backwards, and touching her heels with her head, flung herself round swiftly three or four times, in imitation of a wheel; occasionally reading and writing at the same time that she was going through this rotatory movement. Every one expressed his delight at this exhibition of her agility; and Philip pretending to imitate her, by throwing himself in the same manner forwards, offered a striking contrast to the grace she had exhibited, and excited the ridicule of the party.

The singular feat here described is more interesting, as it bears some resemblance to one of those indicated in the paintings illustrating the customs of the Egyptians at an era far more remote, dating no less than 1300 years before the age of Socrates, where women are represented turning over backwards, either singly or in pairs. In the latter case, the head of one was placed

[1] And by Damascenus, Orat. i.

between the legs of the other, front to front, but in such a manner that when one was standing, the head of the other was downwards, and the feet over the neck; and in this position they turned over, the feet of each alternately reaching the ground.[1]

Fig. 1. *a* *b* *c*

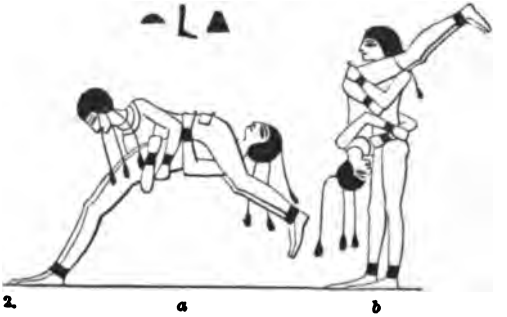

Fig. 2. *a* *b*

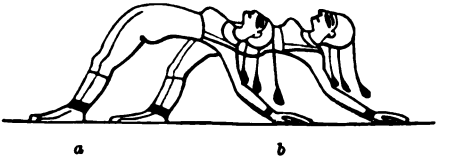

Fig. 3. *a* *b*

No. 316. Women tumbling, and performing feats of agility. *Beni-Hassan.*

The most usual games within doors were odd and even, *mora*,[2] and draughts. The first of these was played also by the

[1] There is no appearance of the Cottabus, so fully described by Athenæus, which was supposed to have passed from Sicily into Greece.

[2] Woodcut No. 317.

Romans, and called 'ludere par et impar,' but considered better suited to the levity of young persons[1] than to the gravity of a more advanced age; and Horace[2] looked upon it in the same light as the trifling amusements of building children's houses, yoking mice to carts, and riding on a stick.[3] According to J. Pollux, they used bones, *astragali*, beans, nuts, almonds, or coins, in the game of odd and even, and any indefinite number was held between the hands.[4]

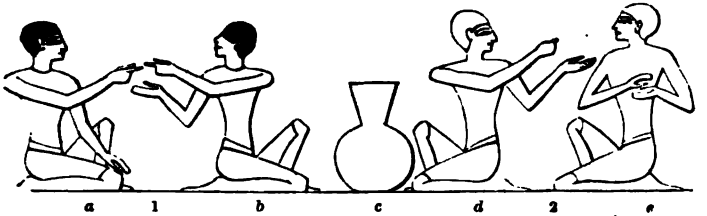

Fig. 1. Playing at *mora*.
2. At odd and even.

No. 317. *Thebes.*

The second was common in ancient as well as modern Italy, and was played by two persons, who each simultaneously threw out the fingers of one hand, while one party guessed the sum of both. They were said in Latin, 'micare digitis,'[5] and it is remarkable that a game, still so common among the lower orders of Italians, with whom it bears the name I have adopted, should be found to have existed in Egypt from the earliest periods of which their paintings remain, even in the reign of the first Usertesen.[6]

The same antiquity may be claimed for the game of draughts, or, as it has been erroneously called, chess. As in the two former, the players sat on the ground or on chairs,[7] and the pieces or men, being ranged in line at either end of the table, probably moved on a chequered board, as in our own chess and draughts; but, the representations being always given in profile, it is impossible to ascertain the exact appearance or the number of squares it contained.[8]

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[1] And to the lower orders.

[2] Hor. Sat. ii. 3, 247.

[3] Agesilaus is mentioned by Plutarch as making 'a hobby-horse of a reed, and riding with his children.' (Plut. 'Life of Agesilaus.')

[4] J. Pollux, Onom. ix. 7. He describes another game, which was throwing the same bones or coins within a ring, and also into a hole, well known in modern times: this last was called τρόπα.

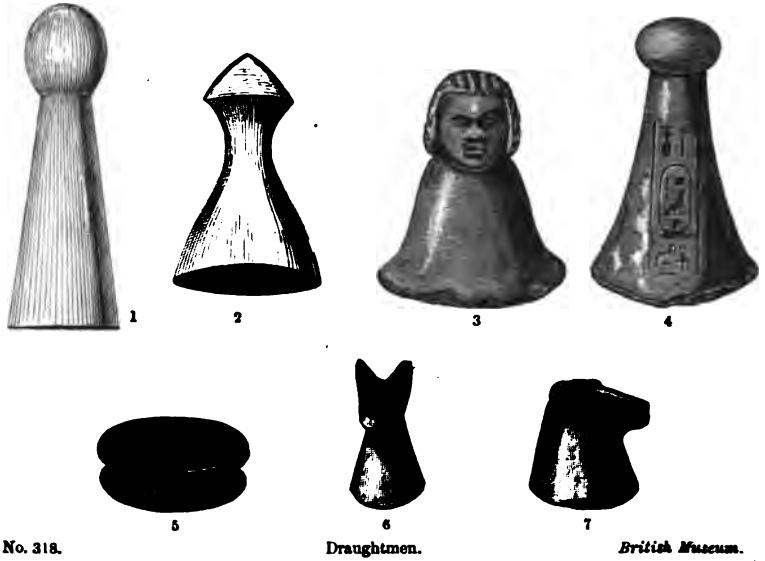
[5] Juv. Sat. Cicero, de Divin. lib. ii. says, 'Quid enim sors est? idem propemodum quod micare, quod talos jacere, quod tesseras.' Offic. iii. 23. Suet. Aug. 13. The 'sortiri digitis,' ἐναλλάττειν τοὺς δακτύλους, was different.

[6] Most of the games were as old as the 4th Dynasty.

[7] Woodcuts Nos. 319 and 322.

[8] They generally played with six pieces, and the set of each player was alike, but

The pieces were all of the same size and form, though they varied on different boards, some being small, others large with round summits; many were of a lighter and neater shape, like



No. 318. Draughtmen. *British Museum.*

Fig. 1. From the sculptures of Rameses III.
2. Of wood.
3. Of porcelain, human headed.
4. Of porcelain, inscribed with the name and titles of Necho I.
5. Wooden draughtman.
6. Of porcelain, cat-headed.
7. Of porcelain, jackal-headed.

small nine-pins—probably the most fashionable kind, since they were used in the palace of king Rameses. These last seem to have been about one inch and a half high, standing on a circular

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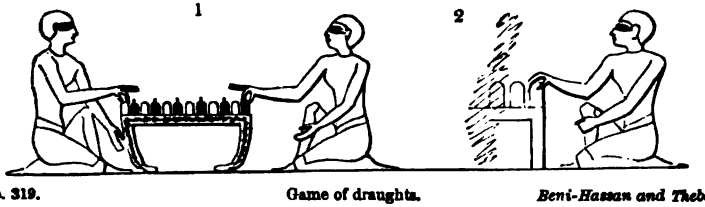
distinct from that of his opponent. The most ordinary form was the cone or conoid, either plain or else surmounted by a pointed or spherical head; but there were several varieties of shapes, as in woodcut No. 318. A very old type of porcelain in the British Museum, No. 6143a, is a human head, and no doubt represents the *t'a* or robber, the *latro* of the Roman draught-board, said to be made of glass, and supposed by some to have been a single piece; another type was cat- or possibly dog-headed (British Museum, No. 6414); and another, decidedly dog- or jackal-headed (No. 6414h), of black porcelain, probably represented the *kuōn*, or dog, as the Greeks called these pieces. The game was one of the delights of the Egyptian Elysium, and played in the future state, according to the 17th chapter of the Ritual, and boards and men, five of one kind and four of the other, are sometimes represented in the sarcophagi of the 11th Dynasty. (Lepsius, 'Die aelteste Texte,' taf. 9.) The boards had 9 squares one way, and 17 the other; in all 153 squares. They were alternately coloured red and black. To this I shall recur. The draughtmen were called *ab*. An account of the games is given by Birch, 'Rev. Arch.' 1864, p. 56; 'Zeitschrift für aegyptische Sprache,' 1866, p. 97; Trans. Roy. Soc. Lit., New Series, ix. p. 256.—S. B.

base of half an inch in diameter; and one in my possession, which I brought from Thebes, of a nearly similar type, is one inch and a quarter in height, and little more than half an inch broad at the lower end. It is of hard wood, and was doubtless painted of some colour, like those occurring on the Egyptian monuments.

They were all of equal size upon the same board, one set black, the other white or red, standing on opposite sides,[1] and each player raising it with the finger and thumb advanced his piece towards those of his opponent; but though we are unable to say if this was done in a direct or a diagonal line, there is



No. 319. Game of draughts. *Beni-Hassan and Thebes.*

reason to believe they could not take backwards, as in the Polish game of draughts, the men being mixed together on the board.[2]

[The board of the game was called , or , *sent;* and a small box with draughtmen, *ab*, found at Thebes, was in the Abbott Collection, and is figured by M. Prisse d'Avennes.[3] It was cut of a solid piece of wood, and was 28 in. long by 7 in. broad, the Latin *mandra*, and had cut in on the sides the squares for the games. On one side it was divided into thirty squares; three on the breadth, and ten down the length. On the opposite side, at one end, was a space of twelve squares, three along the breadth and four deep, and from the middle line eight other squares were continued to the other end of the board, the rest of which was plain. M. Prisse d'Avennes conjectures that

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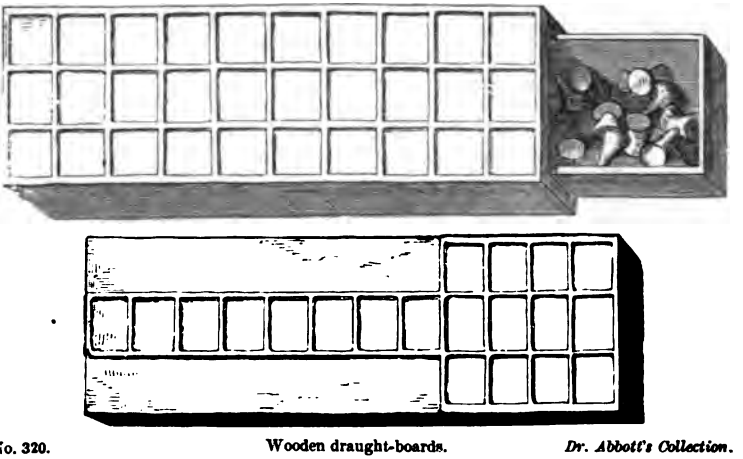
[1] Jul. Pollux, Onom. ix. 7, on a game of tessera, ψῆφοι, of this kind, where the men, or dogs, as they called them, on the two opposite sides, were of a different colour. Another similar game, called διαγραμμισμός, is there mentioned. It is remarkable that the name dog (*kelb*) is applied also by the Arabs to their draughtmen. J. Pollux was a Greek writer who lived about the year 185 A.D. Some suppose the Roman game of *duodecim scripta* to have resembled draughts, but the moves were generally determined by throwing dice.

[2] As in woodcut No. 319, *fig.* 1.

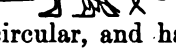
[3] 'Monuments Égyptiens,' pl. xlix. p. 9.

this was the *hiera gramme*, or sacred line of the Greek game *petteia*. A small drawer, with a stud, drew out of the box, and held the pieces, some of which resembled reels. Besides the game of *petteia*, it was thought the square suggested the *diagrammismos* of the Greeks, and the *duodecim scripta* of the Romans, analogous to the game of draughts, the invention of which Plato[1] says was attributed to Thoth.—S. B.]

It was an amusement common in the houses of the lower classes and in the mansions of the rich; and king Rameses is himself portrayed on the walls of his palace at Thebes, engaged in the game of draughts with the favourites of his *haréem*.



No. 320. Wooden draught-boards. *Dr. Abbott's Collection.*

The modern Egyptians have a game of draughts very similar, in the appearance of the men, to that of their ancestors, which they call *dameh*, and play much in the same manner as our own. [In the tomb of *Ra séps*, of the 5th Dynasty,[2] at Saqqarah, is represented another kind of game, called  *hāb em han*, the game of the vase. The board is circular, and has ten concentric bands, along which the pieces move to the centre, where the bands terminate in a kind of lune. One player has seven flat circular pieces, like modern draughts, on the last or innermost lines; the other has three pieces, one of which he is in the act of placing in the centre, and so winning the game. The vase is represented above the board, which was of large dimensions. An adjoining scene represents the usual draughts.—S. B.]

[1] Phædo, p. 274. [2] Lepsius, Denkm. ii. Bl. 61a.

Analogous to the game of odd and even was one in which two of the players held a number of shells or dice in their closed hands, over a third person who knelt between them, with his face

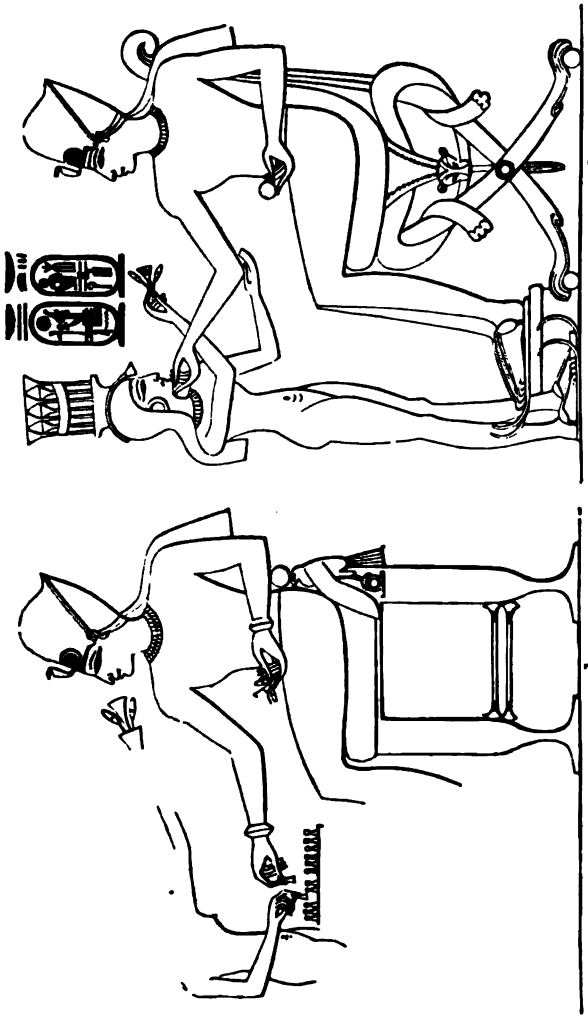


Fig. 1. Ramesses III. playing at draughts.
2. Seated in a chair, on the principle of our camp-stools.

towards the ground, and who was obliged to guess the combined number[1] ere he could be released from this position; unless indeed it be the *kollabismos* of the Greeks,[2] in which one person

[1] This I conjecture from the mode of representing it. *Vide* woodcut No. 323.

[2] Jul. Pollux, Onom. ix. 7. *Vide* woodcut No. 324.

covered his eyes, and guessed which of the other players struck him.[1]

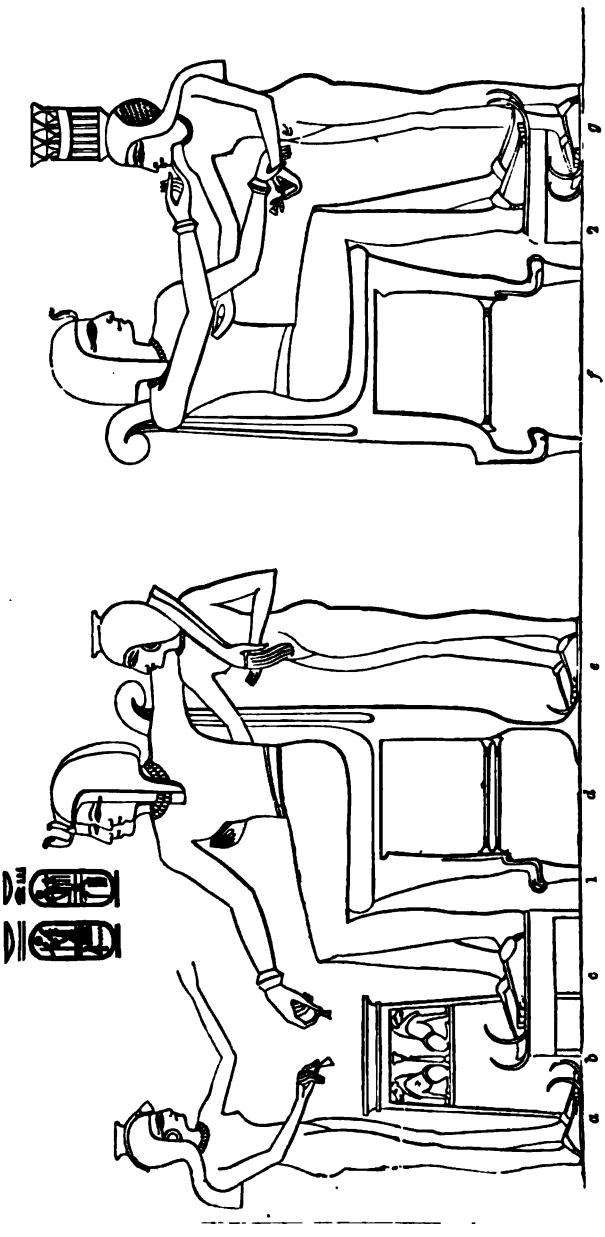


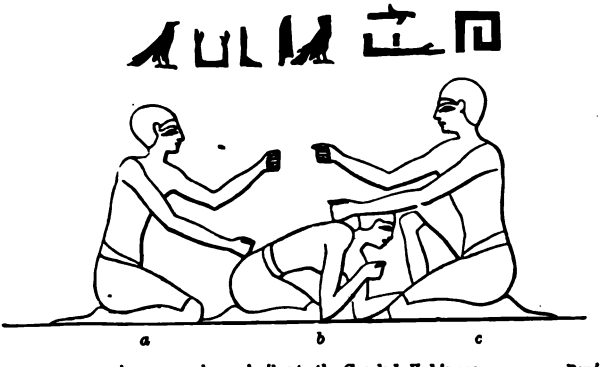
Fig. 1. Rameses III. playing at draughts. In this figure an alteration was made by the sculptor in the head and arm, afterwards covered with stucco, which has since fallen.
2. The same king, seated in the *kiosk*. I suppose these figures had long loose dresses, which being only painted, and not sculptured, have been effaced by time.
No. 332.

[1] The inscription is difficult to explain: it reads *ha ua em ab qa*. It is doubtful if this is a game.—S. B.

Another game consisted in endeavouring to snatch from each other a small hoop, by means of hooked rods, probably of metal; and the success of a player seems to have depended on extricating his own from the adversary's rod, and then snatching up the hoop before he had time to stop it.[1]

No. 323. Playing at the game called Tase. *Saqqarah.*

Some other games are represented in the paintings, but not in a manner to render them intelligible; and many which were doubtless common in Egypt, are omitted both in the tombs and in the writings of ancient authors. It is, however, evident that dice were already used by the Egyptians in the reign of Rhamp-



No. 324. A game perhaps similar to the Greek *kollabismos.* *Beni-Hassan.*

sinitus; that monarch, according to Herodotus, being reported to have played with the goddess Ceres;[2] for the allegorical meaning of the story in no way militates against the fact of such a game having been known at the period in question, and the Egyptians, his informants, were necessarily persuaded that it dated at least as early as his era.[3]

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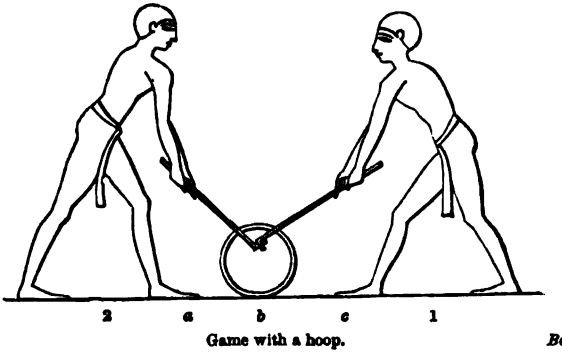
[1] Woodcut No. 325. It is taken from Prof. Rosellini's work. I suppose this to be their mode of playing with the hoop.

[2] Herod. ii. 122.

[3] No dice have been found in Egypt older than the Roman period, nor have

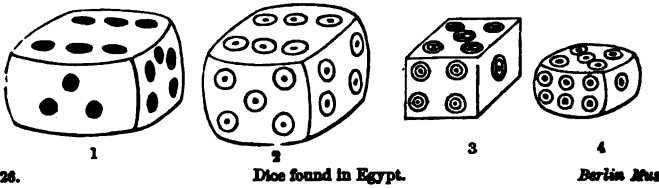
I do not suppose that the dice discovered at Thebes and other places are of a very remote epoch; they may not even be of a Pharaonic period, but the simplicity of their form and mode of notation may lead us to suppose them similar to those of the earliest age, in which too the conventional number of six sides



No. 325. Game with a hoop. *Beni-Hassan.*

had probably always been adopted.[1] They were marked with small circles, representing units, generally with a dot in the centre; and those I have seen were of bone or ivory, varying slightly in size.

Plutarch would lead us to believe that dice were a very early invention in Egypt, and acknowledged to be so by the Egyptians



No. 326. Dice found in Egypt. *Berlin Museum.*

themselves, since they were introduced into one of their oldest mythological fables; Mercury being represented playing at dice with the moon[2] previous to the birth of Osiris, and winning from her the five days of the epact, which were added to complete the 365 days of the year.

The modern Egyptians have a game called in Arabic *múngala*,

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they been recognised in the inscriptions or texts. Nor are there any representations of playing at dice in the earlier or older sepulchres.—S. B.

[1] J. Pollux, Onom. lib. ix. c. 7. The Romans and Greeks had another kind of *tali*, or ἀστραγάλοι, with four sides only marked, the 2 and 5 being omitted. (J. Pollux, ibid.)

[2] Plut. de Is. s. 12: παίζοντα πεττεῖα πρὸς Σελήνην.

which is traditionally reported to have been borrowed from their ancient predecessors; but as a full description of it has been given by Mr. Lane, in his curious and accurate account of the customs of modern Egypt,[1] it is unnecessary here to repeat it.

It is probable that several games of chance were known to the Egyptians besides dice and *mora*, and, as with the Romans, that many a doubtful mind sought relief in the promise of success, by having recourse to fortuitous combinations of various kinds; and the custom of drawing or casting lots, to decide a disputed question, was common at least as early as the period of the Hebrew Exodus.[2]

Among the various methods adopted by the Romans for ascertaining the probable accomplishment of a wish, one of the most singular was that of shooting up the fresh pips of an apple,[3] by squeezing them between the finger and thumb, and endeavouring to strike the ceiling, while seated at table; and the success or failure of the attempt augured in favour or against their good fortune, in obtaining the affections of a favourite, or whatever object they had in view. Such scenes cannot of course be looked for among the subjects of the Egyptian sculptures; but that they were superstitious observers of accidental occurrences, and inferred from them the chance of certain results, is proved to us by the testimony of those who visited the country: for 'whenever,' says Herodotus,[4] 'anything extraordinary occurs, they note it down in writing, and pay particular attention to the events which follow it; and if at a subsequent period something of a similar kind happens to take place, they feel persuaded it will be attended with the same result.'

The games and amusements of children were such as tended to promote health by the exercise of the body, and to divert the mind by laughable entertainments. Throwing and catching the ball, running, leaping, and similar feats, were encouraged, as soon as their age enabled them to indulge in them; and a young child was amused with painted dolls, whose hands and legs, moving on pins, were made to assume various positions by means of strings.[5] Some of these were of rude and uncertain form, with-

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[1] Lane's 'Modern Egyptians,' vol. ii. p. 47.

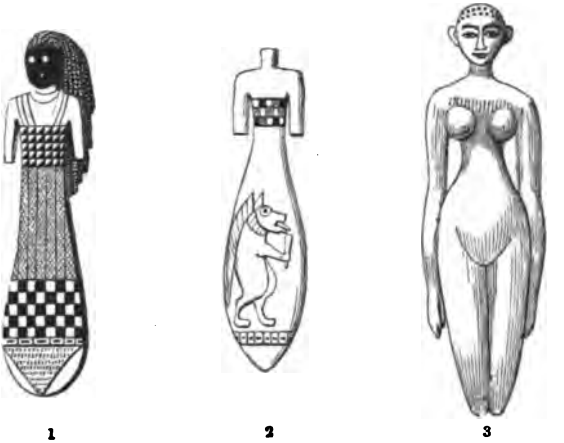
[2] Conf. Leviticus xvi. 8: 'And Aaron cast lots upon the two goats.' The Hebrew word is גּוֹרָל, *gôrel*, as in Joshua xviii. 10.

[3] Hor. Sat. ii. 3, 273; and J. Pollux, ix. c. 7.

[4] Herod. ii. 82.

[5] Conf. Herod. ii. 48, who mentions another kind of figure carried at 'the feast of Bacchus.'

out legs, or with an imperfect representation of a single arm on one side. Some had numerous beads, in imitation of hair, hanging from the doubtful place of the head; others exhibited a nearer

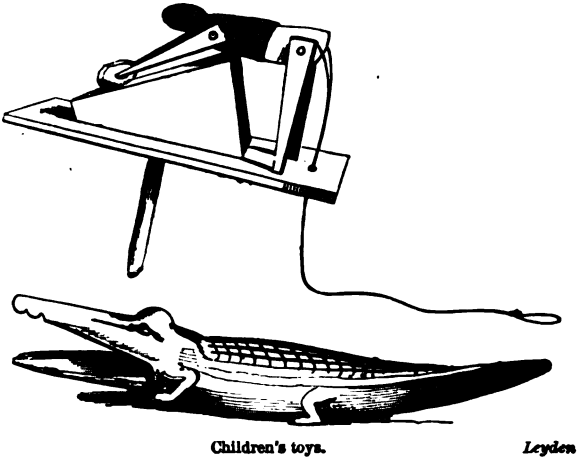


1 2 3

No. 327. Wooden dolls. *British Museum.*

Fig. 1. Flat. 2. Ornamented with Taur. 3. Holes for hair on head.

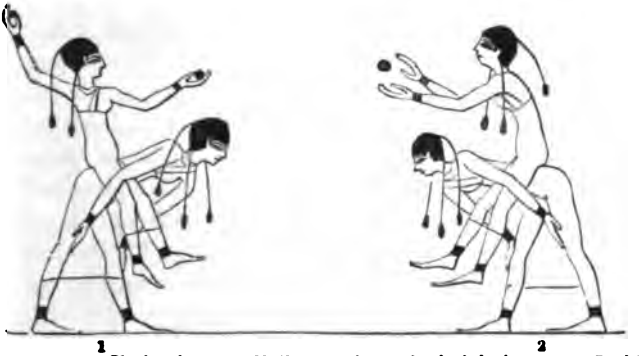
approach to the form of a man; and some, made with considerable attention to proportion, were small models of the human figure. They were coloured according to fancy; the most shapeless had



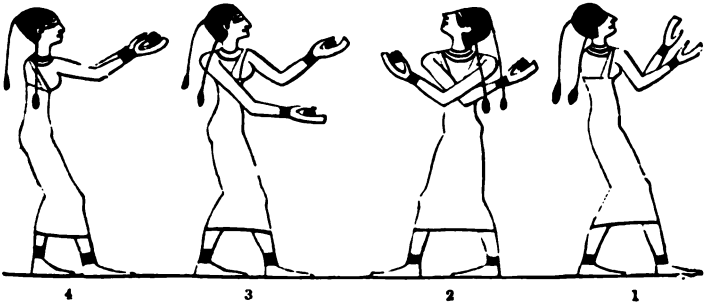
No. 328. Children's toys. *Leyden Museum.*

usually the most gaudy appearance, being intended to catch the eye of an infant; but a show of reality was deemed more suited

to the taste of an elder child; and the nearer their resemblance to known objects, the less they partook of artificial ornament. Sometimes a man was figured washing, or kneading dough, the necessary movement indicative of the operation being imitated by pulling a string; and a Typhonian monster, or a crocodile, amused a child by its grimaces, or the motion of its opening mouth; plainly showing that children, in all ages, delight in the



No. 329. Playing the game of ball mounted on each other's backs. *Beni-Hassan.*

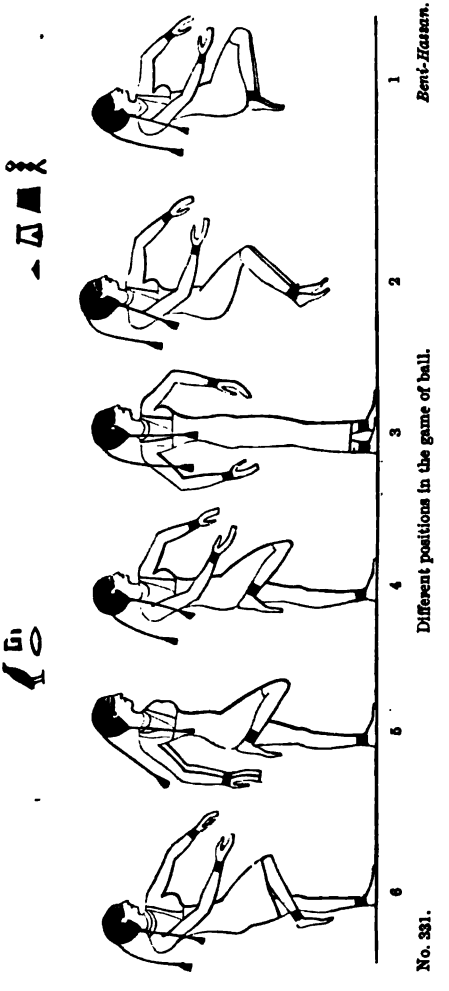


No. 330. Throwing up and catching one, two, and three balls. *Beni-Hassan.*

frightful, and play with objects which, if real, they would shudder to behold. In the toy of the crocodile, we have sufficient evidence that the erroneous notion of Herodotus, who states that this animal 'does not move the lower jaw, and is the only creature which brings the upper one down to the lower,'[1] did not originate with the Egyptians: but we are not surprised at this assertion, when we recollect how easily the motion of the head of

[1] Herod. ii. 68.

the crocodile is mistaken for that of the upper jaw. Like other animals, it moves the lower jaw *only;* but when seizing its prey, the head being thrown up gives the appearance of motion in the upper jaw, and readily leads those who see it into this erroneous conclusion.[1]



The game of ball was not confined to children, or to either sex, though the mere amusement of throwing and catching it appears to have been considered more particularly adapted to females.[2] They had different methods of playing.[3] Sometimes a person unsuccessful in catching the ball was obliged to suffer another to ride on her back, who continued to enjoy this post until she also missed it: the ball being thrown by an opposite party, mounted in the same manner, and placed at a certain distance, according to the space previously fixed by the players; and, from the position and office of the person who had failed, it is not improbable that the same name was applied to her as to those in the Greek game, who were called *ὄνοι* or 'asses,' and were obliged to submit to the commands of the victor.[4]

[1] There is in the British Museum the wooden head of a bird, part of a toy. This head moved by a string. Also several porcelain or earthenware fruits, such as the date, almond, fig, &c., made for children, and used as toys.—S. B.

[2] Not so with the Romans.

[3] J. Pollux, Onom. ix. c. 7, describes various games of ball.

[4] Ibid., ix. c. 7. Woodcut No. 329. [From the appearance and especially the arrangement of the hair of these women,

Sometimes they showed their skill in catching three or more balls in succession, the hands occasionally crossed over the breast; and the more simple mode of throwing it up to a height, and catching it, known to the Greeks by the name of *οὐρανία*,[1] was common in Egypt. They had also the game described by Homer to have been played by Halius and Laodamas, before Alcinöus, in which one party threw the ball as high as he could, and the other, leaping up, caught it on its fall, before his feet again touched the ground.[2]

When mounted on the backs of the losing party, the Egyptian women sat sidewise. Their dress consisted merely of a short petticoat, without a body, the loose upper robe being laid aside

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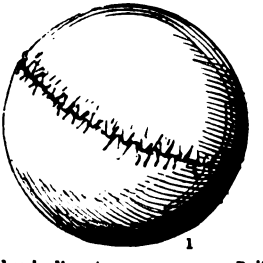

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No. 332. *Fig.* 1. Leather ball, three inches in diameter. 2. Of dark and light blue painted earthenware. *British Museum.*

on these occasions: it was bound at the waist with a girdle,[3] and supported by a strap over the shoulder, and was nearly the same as the undress garb of mourners, worn during the funeral lamentation on the death of a friend.

There is no appearance of anything resembling rackets; nor is the Roman game of striking the ball with the hand[4] represented in the Egyptian sculptures: but we can draw no inference from their absence; and, considering the remote antiquity of the paintings, it is singular that any should have been preserved to

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it is evident that they were professional dancers or jugglers. The action seems pantomimic, and an imitation of a charge or fight, the dancers hurling balls instead of javelins.—S. B.]

[1] From being thrown up *εἰς τὸν οὐρανὸν*, 'to the sky.'

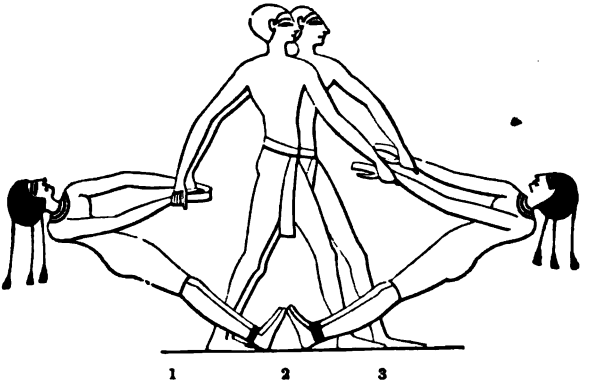
[2] Homer, Od. Θ, 374. J. Pollux, ix. 7; and woodcut No. 331, *fig.* 1.

[3] As the women in mourning. Herodot. ii. 85. [Exposing the breast, however, was not unusual; the women of highest rank being draped in the same manner. Egyptian women had but one dress, a long tunic, called *basui*, reaching from the breast to the ankles, suspended by straps of linen, or braces, *unχu*, passing over the shoulders. —S. B.]

[4] One of these was the *follis*, inflated like our football, called also *pila* or *pila velox*, and struck with the arms: the other was smaller, and struck with the hand, on which they wore a sort of gauntlet; whence it was called *follis pugillatorius*.

this late period, to give us an insight into their customs and amusements.

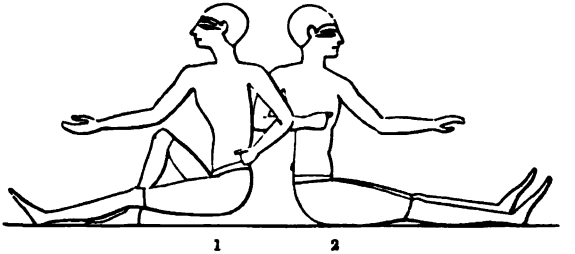
The balls were made of leather or skin, sewed with string, crosswise, in the same manner as our own, and stuffed with bran or husks of corn; and those which have been found at Thebes are



1 2 3

No. 333. Men swinging women round by the arms. *Beni-Hassan.*

about three inches in diameter. Others were made of the stalks of rushes, plaited together so as to form a circular mass, and are, like the former, covered with leather; instances of both which occur in the British Museum. They appear also to have had a smaller kind of ball, probably of the same materials, and covered,



1 2

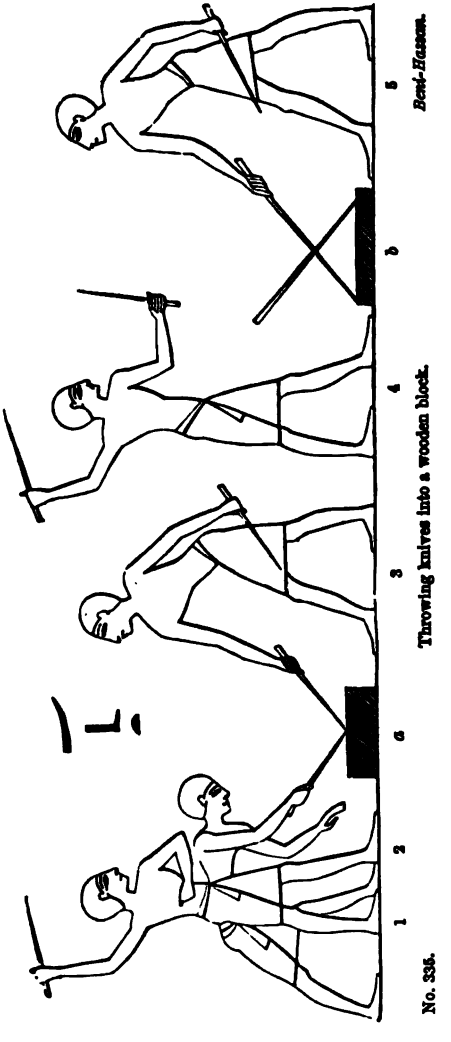
No. 334. Rising from the ground, as they held each other. *Beni-Hassan.*

like many of our own, with slips of leather of a rhomboidal shape, sewed together longitudinally, and meeting in a common point at both ends,[1] each alternate slip being of a different colour;[2]

[1] Woodcut No. 332, *fig.* 2. [2] Homer describes one of a purple colour: Od. Θ, 372.

but, as these have only been met with in pottery, it is uncertain whether they were really imitations of leather balls, or solely made of those materials, and used for some other purpose connected with the toys of children.

Sometimes, in their performances of strength and dexterity, two men stood together side by side, and, placing one arm forward and the other behind them, held the hands of two women, who reclined backwards, in opposite directions, with their whole weight pressed against each other's feet, and in this position were whirled round; the hands of the men who held them being sometimes crossed, in order more effectually to guarantee the steadiness of the centre, on which they turned.

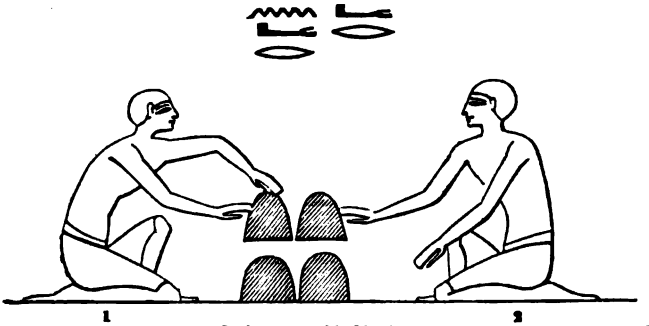


Sometimes two men,[1] seated back to back on the ground, and passing the elbows of the opposite arms within each other, endeavoured to rise in that position, without touching the ground with the disengaged hand; each, probably, trying to rise before his companion, and striving to prevent his success, in order to obtain the merit or the reward of superior dexterity.

Another game consisted in throwing a knife, or pointed

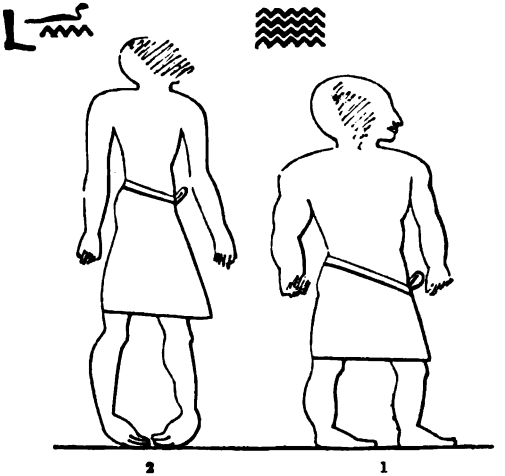
[1] Woodcut No. 334. The inscription reads *menq an ḥs*, or *an ṯs*, but the sense is not clear: the first word means 'reposing;' the two refer to the action.—S. B.

weapon, into a block of wood, in which each player was required to strike his adversary's, or more probably to fix his own in the centre of a ring painted on the wood ; and his success depended on being able to ring his weapon most frequently, or approach most closely to the centre.[1]



No. 336. Conjurers, or thimble-rig. *From Rosellini.*

Conjuring appears also to have been known to them, at least the game of cups, in which a ball was put, while the opposite party guessed under which of four it was concealed.[2]



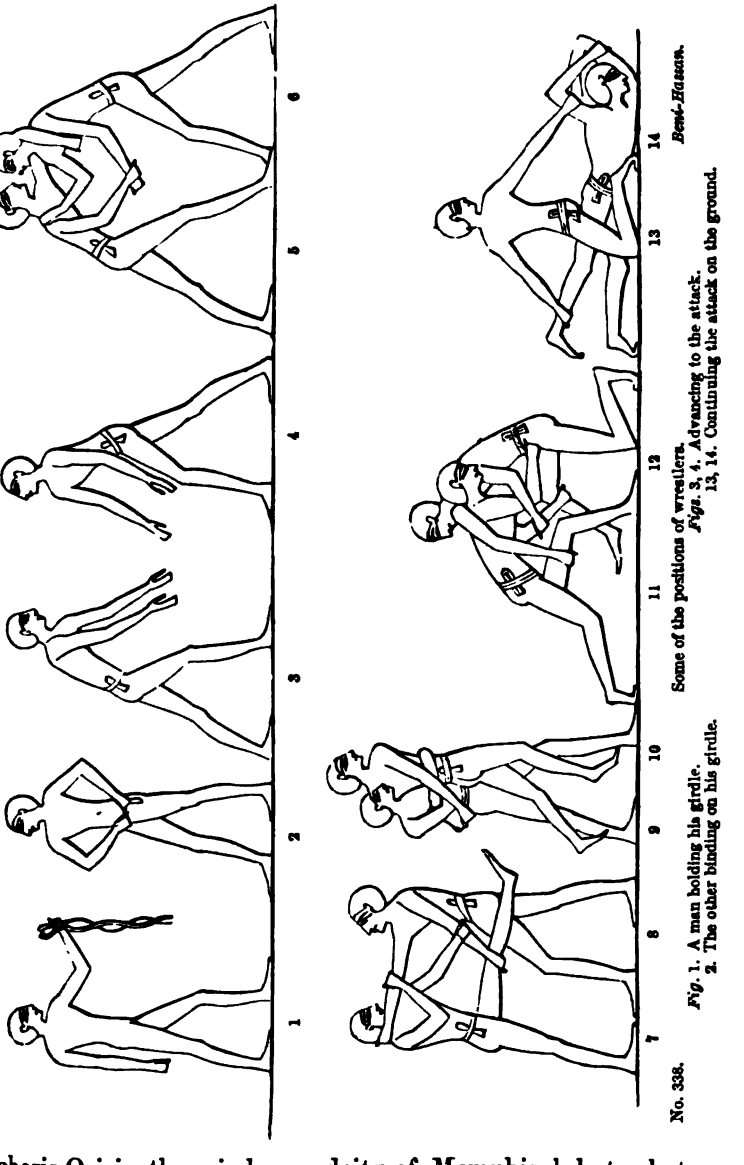
Dwarfs and deformed persons in the service of the Egyptian grandees.
No. 337. The stone is broken in that part where the hands should be. *Beni-Hassan.*

The Egyptian grandees frequently admitted dwarfs and deformed persons into their household, originally, perhaps, from a

[1] Called in the inscription *abt*, 'horn.'

[2] The inscription reads *ār en ār*, 'atop of one another,' but it is doubtful how it was played.—S. B.

humane motive, or from some superstitious regard for men who bore the external character of one of their principal gods, Pthah-



Some of the positions of wrestlers.
Figs. 3, 4. Advancing to the attack.
13, 14. Continuing the attack on the ground.

Fig. 1. A man holding his girdle.
2. The other binding on his girdle.

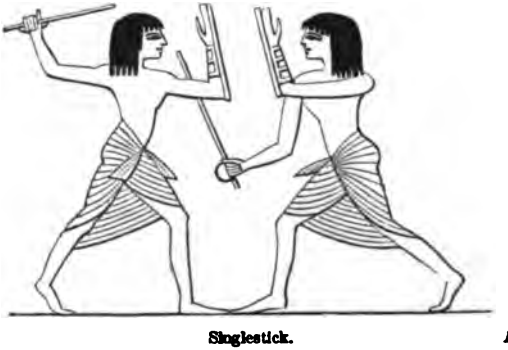
No. 338.

Socharis-Osiris, the misshapen deity of Memphis;[1] but, whatever

[1] The inscription over No. 1 reads *nanas*, 'dwarf' or 'pigmy,' and these appear by no means uncommon in Africa, and figure extensively on the wall-paintings

may have given rise to the custom, it is a singular fact that, already as early as the age of Usertesen, more than 3500 years ago, the same fancy of attaching these persons to their suite existed among the Egyptians as at Rome, and even in modern Europe till a late period.

The games of the lower orders, and of those who sought to invigorate the body by active exercises, consisted of feats of agility and strength. Wrestling was a favourite amusement; and the paintings of the grottoes at Beni-Hassan present all the varied attitudes and modes of attack and defence of which it is susceptible. And, in order to enable the spectator more readily to perceive the position of the limbs of each combatant, the artist has availed himself of a dark and light colour, and even ventured to introduce alternately a black and red figure. It is not, however, necessary to give an instance of every position indicated in



No. 339. Singlestick. *From Rosellini.*

those varied subjects; and a selection of the principal groups will suffice to convey some idea of their mode of representing the combatants, and of their general system of attack and defence.

It is probable that, like the Greeks, they anointed the body with oil, when preparing for these exercises, and they were entirely naked, with the exception of a girdle, apparently of leathern thongs.

The two combatants generally approached each other, holding their arms in an inclined position before the body; and each endeavoured to seize his adversary in the manner best suited to his mode of attack. It was allowable to take hold of any part of

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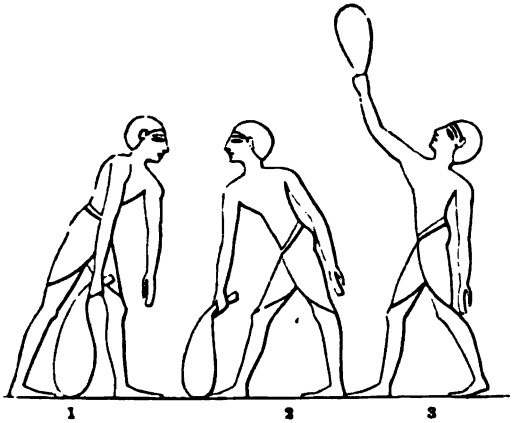
of Pompeii. The inscription over No. 2 reads *t'en-b*, or rather *t'en rat*, 'bandy-legged.' These deformities and dwarfs were the Roman *moriones*, and much caressed as pages by the ladies of high rank.—S. B.

the body, the head, neck, or legs: and the struggle was frequently continued on the ground, after one or both had fallen; a mode of wrestling common also to the Greeks, by whom it was denominated *ἀνακλινοπάλη*. I do not find that they had the same sign of acknowledging their defeat in this game as the Greeks, which was by holding up a finger, in token of submission, and it was probably done by the Egyptians with a word.

They also fought with the singlestick, the hand being apparently protected by a basket, or guard projecting over the knuckles; and on the left arm they wore a straight piece of wood, bound on with straps, serving as a shield to ward off their adversary's blow. They do not, however, appear to have used



No. 340. Raising weights. *From Rosellini.*

the *cestus*, or to have known the art of boxing;[1] nor was throwing the *discus*, or quoit, an Egyptian game.

Among their feats of strength or dexterity may be mentioned that of lifting weights; and bags full of sand were raised with one hand from the ground, and carried with a straight arm over the head, and held in that position.

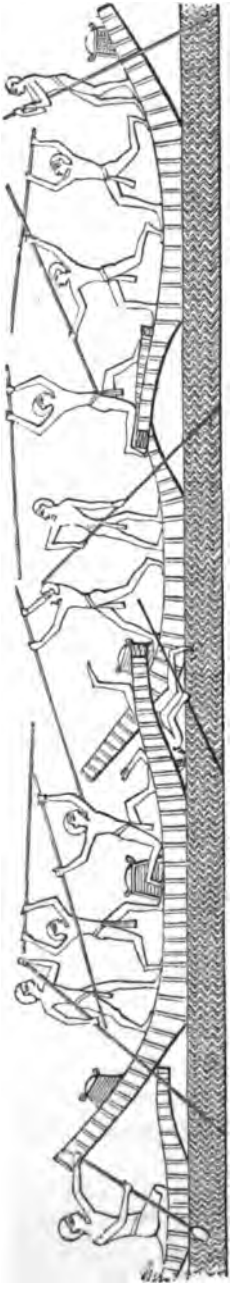
Mock fights[2] were also an amusement, particularly, I imagine, among those of the military class, who were trained to the fatigues of war by these manly recreations. One party attacked a temporary fort, and brought up the battering-ram,[3] under

[1] In one group alone, at Beni-Hassan, the combatants appear to strike each other.

[2] The Ludus Trojæ of the Romans. (Virg. Æn. v. 560; Hor. Ep. i. 18, 61.)

[3] The battering-ram (protected by the covering of the testudo, or *χελώνη*) is supposed by Pliny to have been first mentioned as the wooden horse of Troy; and the *aries*, or ram, is said by him to

cover of the testudo; another defended the walls and endeavoured to repel the enemy; others, in two parties of equal numbers, engaged in singlestick, or the more usual *nebóot*,[1] a pole wielded with both hands; and the pugnacious spirit of the people is frequently alluded to in the scenes portrayed by their artists.



No. 341.

Fig. 1 is a small punt rowed with a paddle.
2, 3, 4. Boats made of rushes, the papyrus boats of ancient writers.
a, *f*, and *k* push on the boats with poles, while the others are engaged in fighting.
d has been thrown into the water by his opponent.

The use of the *nebóot* seems to have been as common among the ancient as among the modern Egyptians; and the quarrels of villages were often decided or increased, as at present, by this efficient weapon. Crews of boats are sometimes represented attacking each other with the earnestness of real strife. Some are desperately wounded, and, being felled by their more skilful opponents, are thrown headlong into the water; and the truth of Herodotus's assertion, that the heads of the Egyptians[2] were harder than those of other people, seems fully justified by the scenes described by their own draughtsmen; and that this

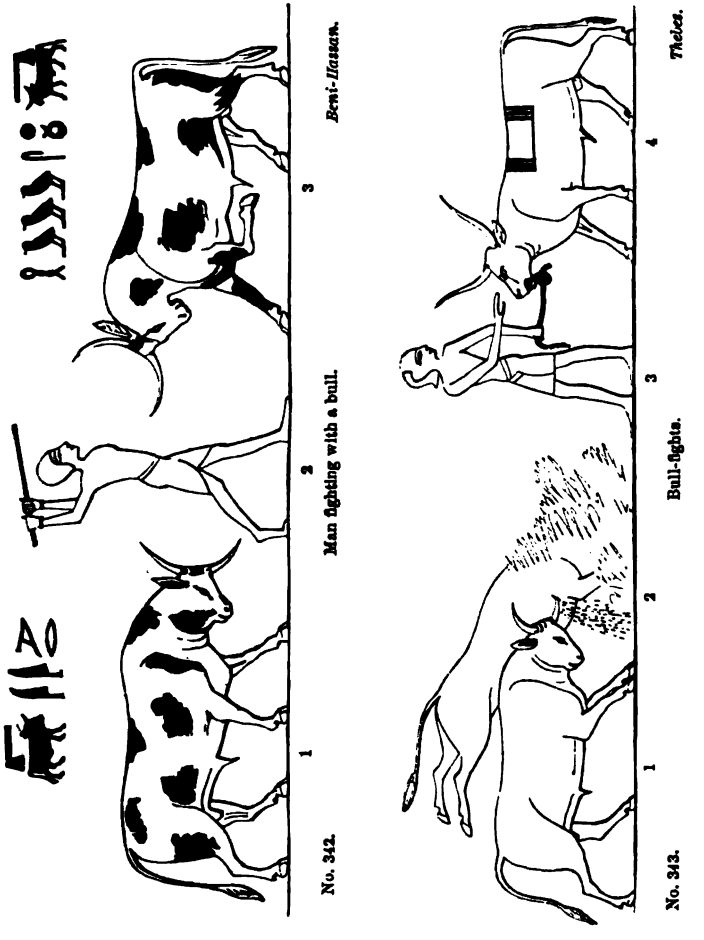
have been originally called 'a horse.' (Lib. vii. 56.) In early times it was merely a pike, *τρύπανον*, or *terebra*. The *χελώνη* is the same as the testudo, and both may be applied exclusively to that part which covered the men. The *testudo arietaria* includes the covering and the pike or ram. (Vitruv. x. c. 19–22.)

[1] It was not a short club, but a pole of considerable length, longer than those now used in Egypt, which are about eight or nine feet. In mentioning the arms of the African enemies of Egypt, I omitted a remark of Pliny, that 'the Africans were the first people who used clubs, called *phalangas*, during their wars with the Egyptians.' (Lib. vii. 56.)

[2] Herodot. iii. 12.

peculiarity has been inherited by their successors is abundantly proved by modern experience.

Many singular encounters with sticks are mentioned by ancient authors; among which may be noticed that described by Herodotus, at Papremis, the city of Mars.[1] When the votaries of

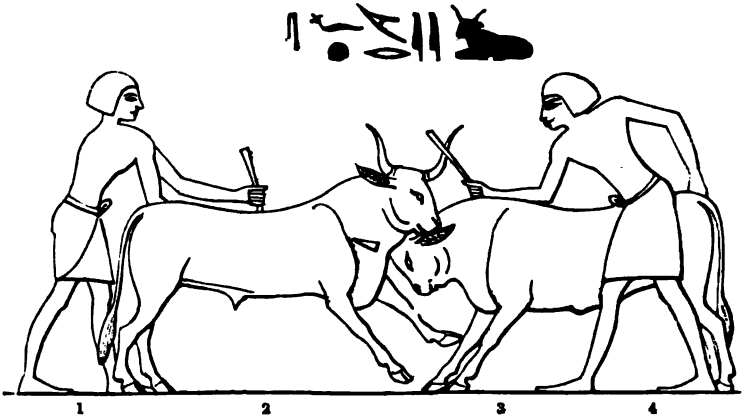


the deity presented themselves at the gates of the temple, their entrance was obstructed by an opposing party; and all being armed with sticks, they commenced a rude combat, which ended, not merely in the infliction of a few severe wounds, but even, as

[1] Herodot. ii. 63.

the historian affirms, in the death of many persons on either side.[1]

In buffoonery they also took great pleasure, and in witnessing the performances of those who danced in the streets to the sound of a drum,[2] decorated with whatever could add to the extravagance and ridicule of their appearance, as ribands, long pendent tassels, or fools' caps; and, judging from a custom still common in Egypt, it is probable that these jesters passed impromptu remarks on the spectators, abounding either in the wit of satire, or the flattery of praise. For, besides professional dancers and



No. 344. A bull-fight. *Thebes.*

musicians, who were hired at entertainments, many ambulant bands went from village to village to amuse the lower orders, gaining a livelihood by their occupation; and all the tricks and gestures were resorted to on those occasions which the ingenuity of a sprightly people could suggest, to excite the generosity of the bystanders and contribute to their amusement.

Bull-fights were also among their sports, and men appear occasionally to have courted the approbation of their friends, and displayed their courage and dexterity, in attacking a bull single-handed, and baffling his attacks.[3]

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[1] Though, he adds, the Egyptians assured him the contrary. The modern Egyptians used to have the same kind of fatal encounters. ('Egypt and Thebes,' p. 237, note §.)

[2] Woodcut No. 226.

[3] Woodcut No. 342. The inscription in woodcut No. 342 reads over the bull to the right *ḥu usχ qa*, 'he strikes the broad bull,' or 'the collar,' *usχ*, 'of the bull,' referring to the action of the man who strikes back the bull with a stick. That over the other bull reads *meri*, the 'loving,' or 'desirous,' or impetuous-of-fighting bull; and the same epigraph is applied to the bull in woodcut No. 344, where the inscription reads *sefχ meri*, 'restraining,' or drawing back, 'the desirous' or 'impetuous' bull.—S. B.

It does not, however, appear that the Egyptians condemned culprits, or captives taken in war, to combat with wild beasts, for the amusement of an unfeeling assembly, as in ancient Rome; nor did they compel them to fight as gladiators, to gratify a depraved taste, which delighted in exhibitions revolting to humanity; and, though we may feel disposed to blame them for compelling prisoners of war to labour at public works, it must be recollected that the usages of society, in those early ages, tolerated a custom which modern civilisation has abandoned; and it is evident that neither the refined Greeks nor Romans can vie with the Egyptians in their manner of treating slaves: a remarkable proof of which is evinced in the behaviour of Potiphar towards Joseph; for in few countries, even at the present day, would the crime of which he was supposed guilty have been visited with more lenient punishment.

Bull-fights appear sometimes to have been encouraged by the higher classes, and to have been held in the dromos, or avenue, leading to their large temples; as Strabo describes at Memphis,[1] before the temple of Vulcan; and prizes were awarded to the owner of the victorious combatant. Great care, he adds, was taken in their mode of training the animals for this purpose, as much as is usually bestowed on horses; and from their being customary in the metropolis of Lower Egypt, we may conclude that bull-fights were not a Greek or Roman introduction, but of early Egyptian date, particularly since we see them noticed, at the most remote period, at Thebes and Beni-Hassan.[2]

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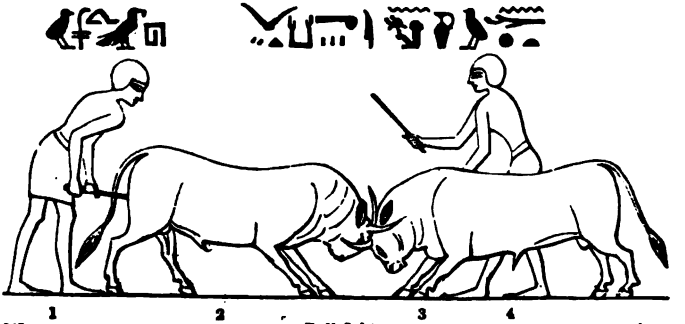
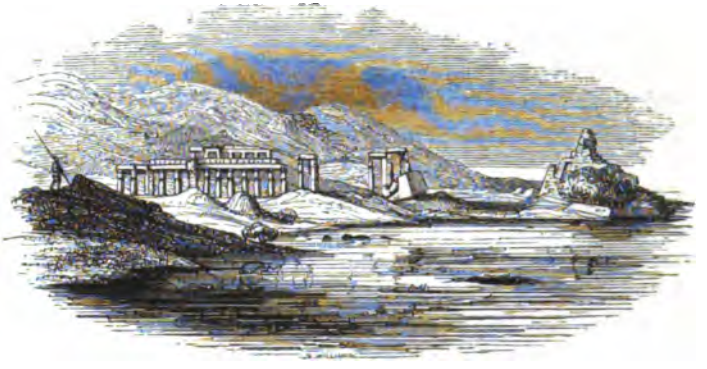
[1] Strabo, lib. xvii.

[2] The inscription of woodcut No. 345 reads over the bull to the right, *apé qau an ari χnum neχt*, 'The trial of the bulls by the keeper Chnumnekht,' who is represented backing the bull on the right. The inscription over the bull on the left reads, *ka su*, apparently 'impelling him.'—S. B.



No. 345. Bull-fight. *Beni-Hassan.*

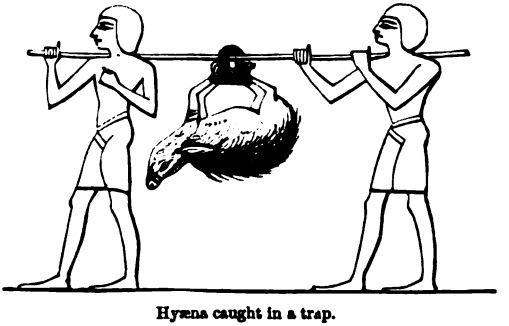


VIGNETTE G.—The palace-temple of Rameses the Great, generally called the Memnonium, at Thebes, during the inundation.

CHAPTER VIII.

The Chase—Animals—Dogs—Fowlers—Fishermen—Hippopotamus—Crocodile—The Tentyrites.

ALL classes of the Egyptians delighted in the sports of the field, and the peasants deemed it a duty as well as an amusement to hunt and destroy the hyæna, and those animals which were enemies of the fields or flocks, and they shot them with the bow, caught them in traps, or by whatever means their dexterity and ingenuity could suggest: for though the hyæna is a carnivorous



No. 346. Hyæna caught in a trap. *Thebes.*

animal, it is not less hostile to the crops than to the flocks, when pressed with hunger,[1] and the ravages they are known to commit in the fields among the Indian corn and other produce make the

[1] Already noticed in 'Egypt and Thebes,' p. 243, note.

peasants of modern Egypt as anxious as their predecessors to destroy them whenever they have an opportunity, or the courage to attack them.[1]

Plato[2] reckons the huntsmen as one of the castes of the Egyptians; and though, as I have already observed, persons who followed this occupation may have constituted a particular body, or a minor subdivision of one of the castes, we are not to suppose that the sports of the field were confined to those who gained their livelihood by the chase; or that the wealthy classes of Egyptians were averse to an amusement so generally welcomed in all countries. Indeed, the sculptures of Thebes, Beni-Hassan, and other places assure us that they took particular delight in chasing the wild animals, kept in their preserves for this purpose, and even in the more laborious task of following them in the extensive tracts of the wide desert, which stretch to the east and west of the valley of the Nile. On these occasions they were attended by several huntsmen, whom they kept in their service to attend upon the hounds, to direct the hunt, to assist in catching the larger animals with a noose, to carry darts and hunting poles,[3] to arrange the nets,[4] and, in short, to manage all matters connected with the chase.

When the chasseur was a person of consequence, numerous attendants accompanied him, not merely in the capacity of beaters, to rouse and turn the game, or to carry it when killed, but for various purposes connected with his immediate wants or comforts while in the field: some brought with them a fresh supply of arrows, a spare bow, or other requisites for remedying accidents; and some carried a stock of provisions for his use. These were borne upon the usual yoke across the shoulders, and consisted of a skin of water, and jars placed in wicker baskets, probably containing bread, meats, or other provisions. The skins used for carrying water were precisely the same as those of the present day, being of a goat, or a gazelle, stripped from the body by a longitudinal opening at the throat; the legs serving as handles, to which ropes for slinging them were attached; and

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[1] The hyæna was not particularly an object of the chase, for, as shown before, at the time of the 4th Dynasty they were tamed and even eaten.—S. B.

[2] Plato in Timæo, near the beginning.

[3] The Roman *venabula* were of a thickness of a spear, armed with a sharp iron point, of moderate length, and used as a defensive weapon against the attack of a wild beast, being held in a slanting direction to receive it. (J. Pollux, v. 4.)

[4] Virg. Æn. iv. 131, and Hor. Ep. i. 6, 58. This person was called by the Greeks, δικτυαγωγός. (J. Pollux, v. 4.)

a soft pendent tube of leather sewed to the throat, in the place of the head, formed the mouth of the water-skin, which was secured by a thong fastened round it.[1]

Sometimes a space of ground, of considerable extent, was enclosed with nets, into which the animals were driven by beaters; and as this is frequently shown by the sculptures to have been in a hilly country, it is evident that the scenes of those amusements were in the desert, where they probably extended nets across the narrow valleys, or torrent-beds, which lie between the rocky hills, difficult of ascent to animals closely pressed by dogs. This is indeed the only way in which a person mounted on horseback[2] or in a chariot could follow, or get within reach of them with the bow; and that some animals, particularly antelopes, when closely pressed, fear to take a steep ascent, is a fact well known to the Arabs; and I have myself, when following them with dromedaries in the same valleys, observed that gazelles preferred doubling, and swiftly passing between their pursuers, to the risk of slowly ascending the eminence to which they had been driven.

The spots thus enclosed were usually in the vicinity of the water-brooks,[3] to which they were in the habit of repairing in the morning and evening; and having awaited the time when they went to drink, and ascertained it by their recent tracks on the accustomed path,[4] the hunters disposed the nets, occupied proper positions for observing them unseen,[5] and gradually closed in upon them. Such are the scenes partially portrayed in the Egyptian paintings, where long nets are represented surrounding the space, wherein the chasseur and his attendants pursue the game, either on foot or mounted in a chariot; and the presence of hyænas, jackals, and various wild beasts unconnected with the sport, is intended[6] to show that they have been

[1] These skins have been already mentioned and were called *s'et*. Their principal use was for water, which was carried in them across the desert.—S. B.

[2] As in Virgil, Æn. iv. 151; but the Egyptians are never represented as hunting either in chariots or mounted on horseback; the hunter always went on foot, at all events at the earliest period when hunting scenes were represented. —S. B.

[3] "As the hart panteth after the water brooks." (Ps. xlii. i.) The Hebrew name is אַיָּל, Ail, evidently the same as the Egyptian Ⲉⲓⲟⲩⲗ and the Arabic ايل which I believe to be the oryx.

[4] My long sojourn with the Arabs in the desert, and my frequent visits to the springs for the same purpose, have explained to me the methods adopted by the Egyptian chasseurs.

[5] The person whose business it was to watch the nets was called by the Greeks λινόκτης, ὁ τὰ ἀμπίστοντα ἀποσκοπούμενος. (J. Pollux, v. 4.)

[6] In the tomb of Ptahhetp at Memphis, published by Duemichen, 'Resultate,' Th. i., 1869, Taf. viii., is seen one of these spots,

accidentally enclosed within the line of nets, which, from embracing an extensive tract, necessarily included within its range the resort of these, as well as of the antelopes and other animals of which they were in quest.

The same custom of surrounding a spot which they intended to beat seems to have been adopted by the Romans; and Virgil[1] represents Æneas and Dido repairing to a wood at break of day, after the attendants had surrounded it with a temporary fence to enclose the game. This is further confirmed by the description given by Julius Pollux of the various contrivances employed in hunting; and he makes an evident distinction between the nets for enclosing a large space, and those for stopping gaps or openings and other purposes.

The long net, called *diktys*, was furnished with several ropes, and was supported on forked poles, varying in length, to correspond with the inequalities of the ground over which it extended, and this was so contrived as to enclose any space by crossing hills, valleys, or streams, and encircling woods, or whatever might present itself; a description fully applicable to those exhibited in the Egyptian paintings.[2] Smaller nets, called *enhodia*, for stopping gaps, are also described by the same author; and a circular snare, *podagra*, set round with wooden and iron nails, and attached by a rope to a log of wood, which was used for catching deer, so nearly resembles one still made by the Arabs, and supposed to be an old Egyptian invention,[3] that we may conclude it was common to several ancient people.

In many instances the dresses of the attendants and huntsmen were, as Julius Pollux recommends, 'not white, nor of a brilliant hue, lest they should be seen at a distance by the animals,' but of a suppressed colour, and reaching only a short way down the thigh;[4] being shorter even than those he mentions, which extended to the knee; and the horses of the chariots were divested of the feathers and showy ornaments used on other occasions.

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and amongst the animals represented are lions and wild dogs. Many of the spots are mountainous.

[1] Virg. Æn. iv. 117.

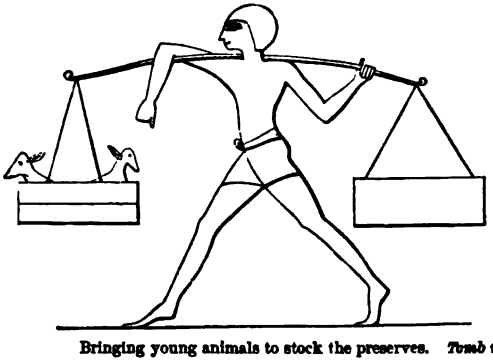
[2] J. Pollux, Onom. v. 4.

[3] Although nets are often represented for fishing and fowling, few if any representations of them are seen for taking animals of the chase, which were generally shot with arrows, and brought down by different kinds of hounds, held by leashes round the neck till the moment of setting them on the animal; nor is any example known of conducting the chase in chariots: at the earlier period the hunters always went on foot.—S. B.

[4] Woodcut No. 347. It was customary with the Egyptians, on ordinary occasions, to wear a kilt reaching to the knee.

Besides the portions of the open desert and the valleys above alluded to, which were enclosed by the Egyptians during their hunting excursions, the parks and preserves on their own domains in the valley of the Nile, though of comparatively limited dimensions, offered ample space and opportunity for indulging in the amusement of the chase; and there, as in the *theriotrophia* of the Romans, a quantity of game was kept, among which may be enumerated the wild goat, oryx, and gazelle. They had also fishponds, and spacious *vivaria*, set apart for keeping geese and other wild fowl, which they fattened for the table.

It was the duty of the huntsmen, or the gamekeepers they employed, to superintend the preserves; and at proper periods of the year, when the young animals could be obtained, they sought them, and added to the stock, which continued also to



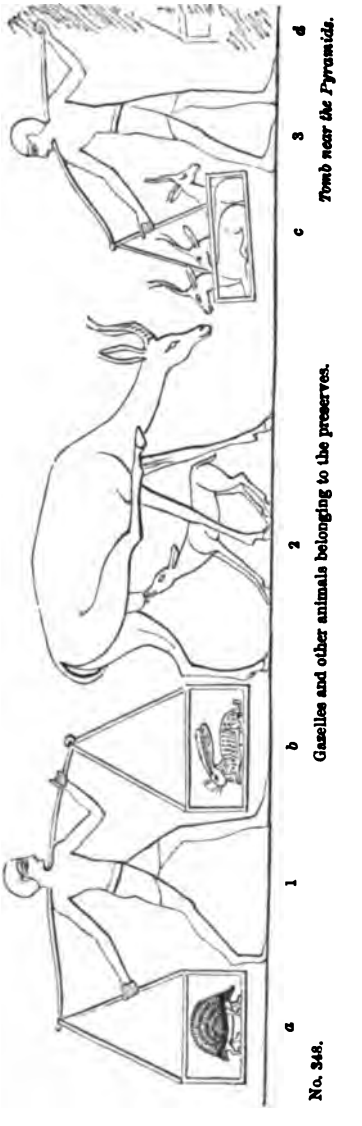
No. 347. Bringing young animals to stock the preserves. *Tomb near the Pyramids.*

increase, independent of those occasional additions, through the care taken in encouraging their propagation, by a judicious regard to their habits. And this is confirmed by the numerous flocks of gazelles and other wild animals represented in the tombs among the possessions of the deceased, of which the scribes are seen writing an account, at the command of the steward, who waits to present it, with an annual census of his property, to the owner of the estate.

Being fed within pastures enclosed with fences, they were not marked in any particular way like the cattle, which, being let loose in open meadows and frequently allowed to mix with the herds of the neighbours, required some distinguishing sign by which they might be recognised; and were, therefore, branded on the shoulder with a hot iron, probably engraved with the owner's name. This is distinctly shown in the paintings of

Thebes, where the cattle are represented lying on the ground with their feet tied, while one person heats an iron on the fire, and another applies it to the shoulder of the prostrate animal.

In primitive ages the chase was not an amusement, but a necessary occupation among those people who did not follow agricultural pursuits or lead a pastoral life, and who depended for their subsistence upon the sports of the field; and in some instances the shepherd was obliged to hunt and destroy the wild beasts, for the security of his flocks and herds, and sometimes even for his own safety.[1] In after-times, when population increased, and each community began to adopt the habits of civilised life, the injuries apprehended from them decreased; and the fear of man having compelled them to remove their haunts to a greater distance, their pursuit was no longer required: and those who hunted followed the occupation as an amusement, to supply the table, or in the employ of other persons; as among the Egyptians, Babylonians, Persians, and Medes.



[1] Whence in Exodus xxiii. 29: 'I will not drive them out from before thee in one year, lest the land become desolate, and the beast of the field multiply against thee.' [The sculptures of Nimroud and Kouyunjik are full of the hunts of Assurnazirpal, Sennacherib, and Assurbanipal. (Layard, 'Nineveh and Babylon,' 8vo. Lond. 1853.) Besides the ordinary chase, the Assyrians had battues of lions, which were brought in cages and let loose to be killed. The Egyptian monarchs were devoted to the chase. Antefaa, of the 11th Dynasty, had packs of hounds. Thothmes III. chased elephants in Ninii, or Nineveh. Amenophis III. has recorded on a scarabæus that he killed 102 lions in 10 years of his reign; and Thothmes IV. has recorded his dream and hunts in the neighbourhood of the Great Sphinx. (Pierret, 'Dict. d'Archéologie,' p. 125.)—S. B.]

In the East, indeed, it was always looked upon as a manly exercise, requiring courage and dexterity, and tending to invigorate the body and instil into the mind a taste for active pursuits: it was held in such repute, that the founders of empires were represented in the character of renowned hunters. The

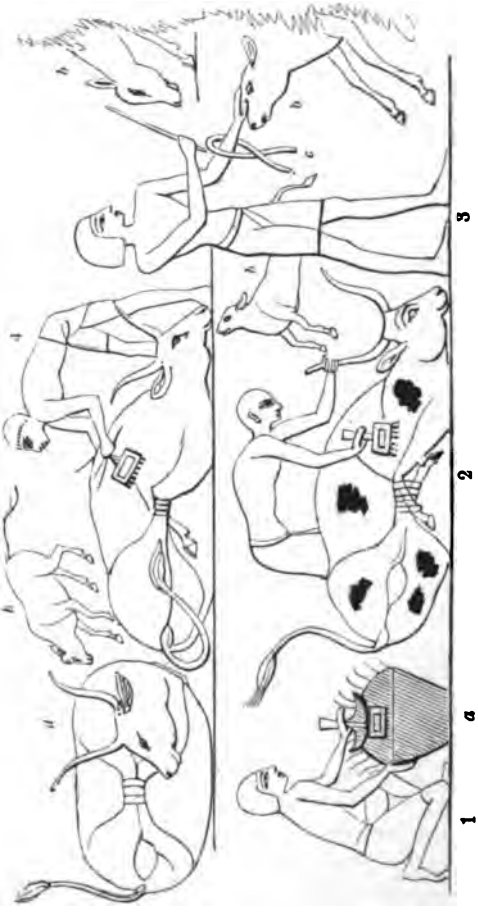


Fig. 1. Heating the iron on the fire, *a*.
2 and 4. Employed in marking the cattle.
3. Holds a tethering-cord on his left arm, and keeps away the calves.

Babylonians were so fond of the chase, that the walls of their rooms presented a repetition of subjects connected with it;[1] and they even ornamented their dresses and the furniture of their houses with the animals they hunted.[2] The Medes and Persians

[1] Ammian. Marcell. lib. xxvi. c. 6.

[2] Athen. lib. xii. 8.

were equally noted for their love of field sports; and, like the Egyptians, they had spacious preserves[1] where the game was enclosed; the grounds of the royal palaces containing antelopes and other animals, pheasants, peacocks, and abundance of birds, as well as lions, tigers, and wild boars.[2]

The Egyptians frequently coursed with dogs in the open plains, the chasseur following in his chariot, and the huntsmen on foot. Sometimes he only drove to cover in his car, and, having alighted, shared in the toil of searching for the game, his attendants keeping the dogs in slips, ready to start them as soon as it appeared. The more usual custom, when the dogs threw off in a level plain of great extent, was for him to remain in his chariot, and, urging his horses to their full speed, endeavour to turn or intercept them as they doubled, discharging a well-directed arrow whenever they came within its range.

The dogs were taken to the ground by persons expressly employed for that purpose and for all the duties connected with the kennel, the *κυναγωγοὶ*[3] of the Greeks, and were either started one by one or in pairs, in the narrow valleys or open plains: and when coursing on foot, the chasseur and his attendant huntsmen, acquainted with the direction and sinuosities of the torrent beds, shortened the road, as they followed across the intervening hills, and sought a favourable opportunity for using the bow; or marked with a watchful eye the progress of the course in the level space before them.[4] For not only was the chasseur provided with a bow, but many of those also who accompanied him; and the number of head brought home was naturally looked upon as the criterion of a good day's sport.

Having with eager haste pursued on foot, and arrived at the spot where the dogs had caught their prey, the huntsman, if alone, took up the game, tied its legs together, and hanging it over his shoulders, once more led by his hand the coupled dogs, precisely in the same manner as the Arabs are wont to do at the present day: this, however, was generally the office of persons who followed expressly for the purpose, carrying cages and baskets on the usual wooden yoke, and who took charge of the game as soon as it was caught; the number of these substitutes for our game-cart depending of course on the proposed range of the chase, and

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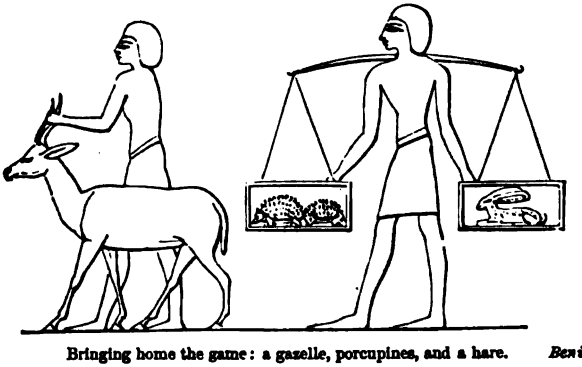
[1] Xenoph. Cyr. lib. i.: *ἐν παραδείσοις.* Cyrop. lib. i. [3] J. Pollux, iv. 5.
Dio. Chrysost. in Orat. 3. [4] As the Arabs of the present day, in
[2] Curtius, lib. vii. and viii. Xenoph. the same districts.

the abundance they expected to find. Sometimes an ibex,[1] oryx, or wild ox, being closely pressed by the hounds, and driven to an

No. 350. The huntsman carrying home the hobbled game, with his coupled dogs. *Thebes.*

eminence of difficult ascent, faced round and kept them at bay with its formidable horns;[2] and the spear of the huntsman, as he came up, was required to decide the success of the chase.



No. 351. Bringing home the game: a gazelle, porcupines, and a hare. *Beni-Hassan.*

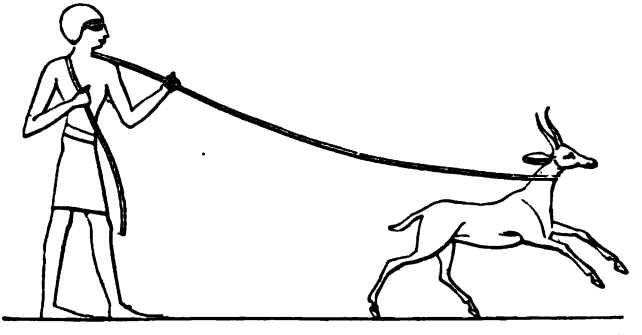
It frequently happened, when the chasseur had many attendants and the district to be hunted was extensive, that they

[1] The wild goat of the desert, the *beddan* or *tâytal* of the Arabs, which are still common in the desert between the Nile and Red Sea.

[2] I have occasionally witnessed instances of this in the desert.

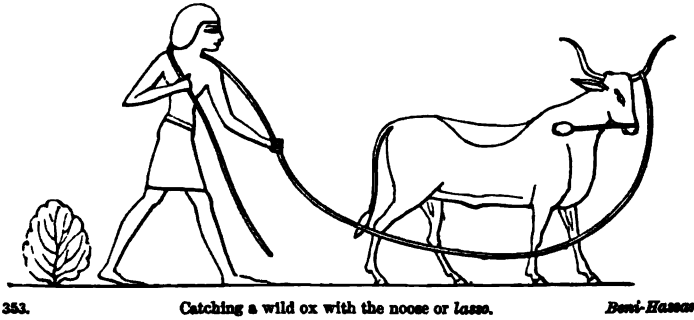
divided into parties, each taking one or more dogs, and starting them on whatever animal broke cover; sometimes they went without hounds, merely having a small dog for searching the bushes, or lay in wait for the larger and more formidable animals, and attacked them with the lance.

The noose was also employed to catch the wild ox, the ante-



No. 352. Catching a gazelle with the noose. *Beni-Hassan.*

lope, and other animals; and as they are always represented on foot, when throwing it, we may suppose they lay in ambush for this purpose, and that it was principally adopted when they wished to secure them alive: since we find they frequently chased the same animals with dogs, and with the bow. The noose was very similar to the *lasso* of South America, but it does not appear



No. 353. Catching a wild ox with the noose or *lasso*. *Beni-Hassan.*

that the Egyptians had the custom of riding on horseback when they used it; and from the introduction of a bush immediately behind the man who has thrown it, we may suppose the artist intended to convey the notion of his previous concealment.

Besides the bow, the hounds, and the noose, they hunted with lions, which were trained expressly for the chase, like the

cheetah or hunting leopard of India: but there is no appearance of the leopard[1] or the panther having been employed for this purpose, and the lion was always the animal they preferred. It was frequently brought up in a tame state,[2] and many Egyptian

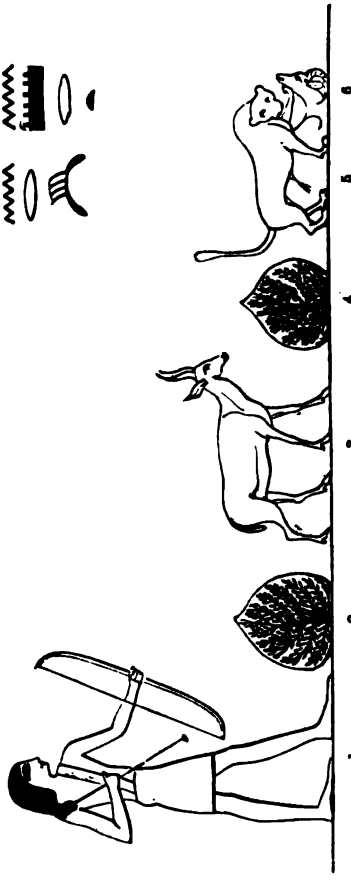


Fig. 5. The lion, which has seized an ibex.
The inscription reads, *Nek'er neruu*, 'overthrowing the dorcas-goat.'

monarchs are said to have been accompanied in battle by a favourite lion,—as we learn from the sculptures of Thebes and other places, and from the authority of Diodorus.[3]

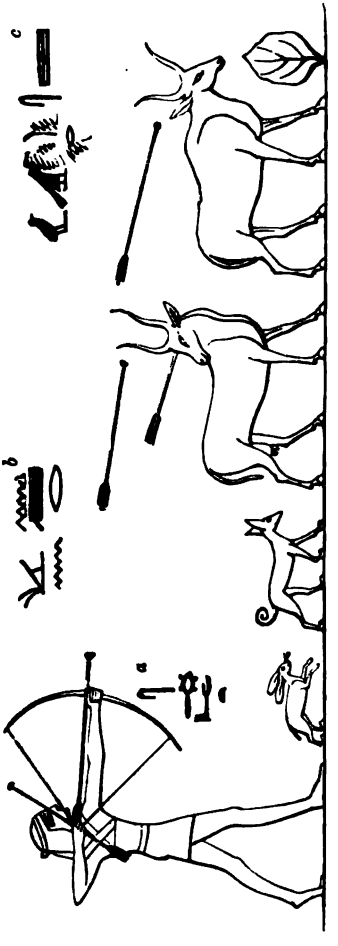
The bow used for the chase was very similar to that employed

[1] Bajazet I. (Byazeéd) had 12,000 officers and servants of the chase. Besides hounds of various breeds, he had leopards, whose collars were set with jewels. (Gibbon, xi.)

[2] I have seen two or three tame lions in Cairo. Animals are more easily tamed in those climates than in Europe.

[3] Diod. i. 48. And the sculptures of Dayr, Medeenet Haboo, Kalabshi, &c.

in war; the arrows were frequently the same, with metal heads, but some were tipped with stone, which are represented in the hunting scenes of Beni-Hassan, and in many of those at Thebes. The mode of drawing the bow was also the same, though, as I have already observed, the chasseurs sometimes pulled the string



No. 355. *Beni-Hassan.*

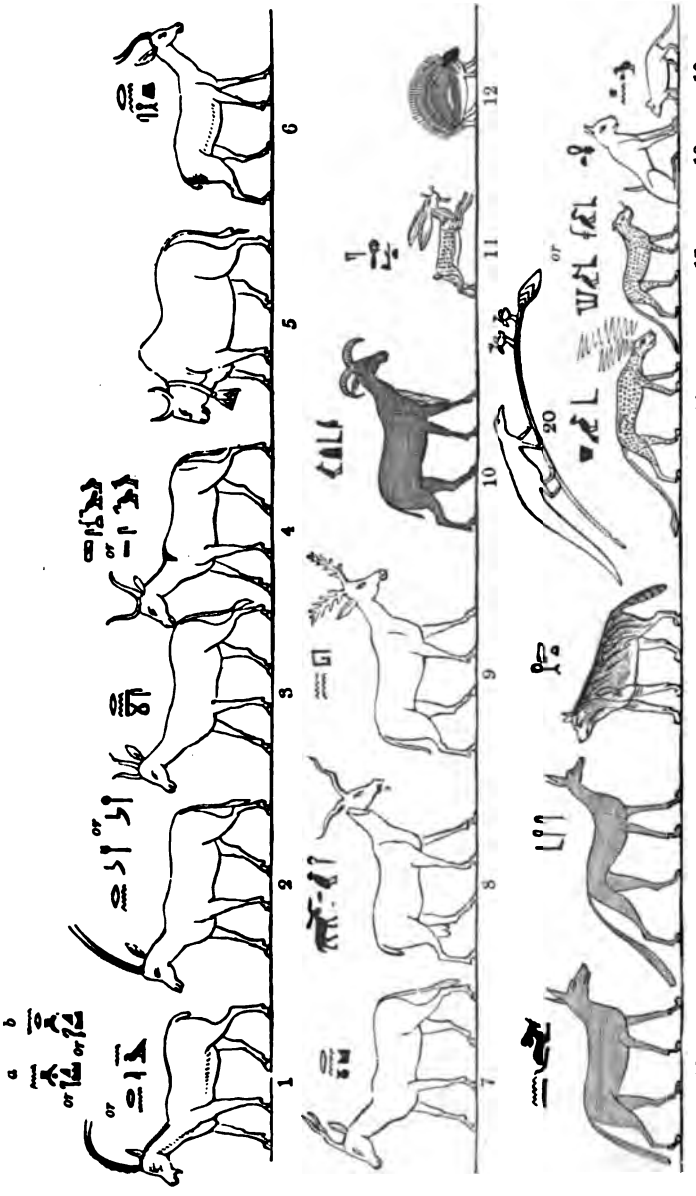
A chasseur shooting at the wild oxen, accompanied by his dog, *fig.* 3.

a. *Sȳa*, 4, hare. b. *Nefer hebes*, supposed to be the name of the dog, but probably refers to the action, as striking the *hebes* or *hoe*. c. *Sȳa ber uut u*, name of the animal.

only to the breast, instead of the more perfect and more usual method of raising it, and bringing the arrow to the ear; and occasionally, one or more spare arrows were held in the hand,[1] to give greater facility in discharging them with rapidity on the swift antelopes and wild oxen.

[1] Woodcut No. 355; and No. 35, in vol. i.

The animals they chiefly hunted were the gazelle, wild goat



No. 356. Animals from the sculptures. 5, 15, 20. From *Thebes*; the rest from *Beni-Hassan*.

1. The ibex, *nasu keg* (*a*) or *nerau keg* (*b*) or *nasu*. 2. The oryx, *nasu ket*. 3, 4. Wild oxen, *t'akas*, *t'eater*, *t'es nasu*. 5. Humped or Indian ox. 6. Gazelle, *tzakas*. 7. Probably the Antilope addax, *nasu*. 8. Goat, *keg t*. 9. Stag, *kaava*. 10. The kebsh, *abu*. 11. Hare, *sy-di*. 12. Porcupine. 13. Wolf, *unt'*. 14. Fox, *sabu*. 15. Hyæna, *ket-t*. 16, 17. Species of leopard, *ka* (16), *bakn* (17). 18. Cat, *mau*. 19. Rat, *pennu*. 20. Ichneumon, *kaam*. 10 is coloured red in the paintings: the kebsh is of a sandy colour.

or *ibex*, the oryx, wild ox, stag,[1] *kebsh* or wild sheep, hare, and

[1] Probably the same as the *Cervus barbarus*.

porcupine;[1] the meat of all of which was highly esteemed among the delicacies of the table. Others, as the fox, jackal, wolf, hyæna, and leopard, were chased as an amusement, for the sake of their skins, or as enemies of the farm-yard; and the ostrich held out a great temptation to the hunter from the value of its plumes. These were in great request among the Egyptians for ornamental purposes; a religious veneration for them, as the symbol of truth, enhanced their value; and the members of the court on grand occasions failed not to deck themselves with the feathers of the ostrich. The labour endured during the chase of this swift-footed bird was amply repaid; even its eggs were required for some ornamental or religious use, and these, with the plumes, formed part of the tribute imposed by the Egyptians on the conquered countries where it abounded. The purposes to which the eggs were applied are unknown; but we may infer, from a religious prejudice in their favour among the Christians of Egypt, that some superstition was connected with them, and that they were suspended in the temples of the ancient Egyptians, as they still are in the churches of the Copts.[2]

The subjects of the chase in the sculptures are frequently represented with great spirit. The character of the animals is maintained with wonderful truth, and, though time and the hand of man have done much to injure them, sufficient remains to evince the skill of the Egyptian draughtsmen. Distance and locality are not so well defined, and the archer, like all Egyptian figures, offends against every rule of drawing and perspective; but the action of the dogs and of the flying antelopes is spirited, and shows how successfully the effect was given by simple outline.

It is singular that the wild boar is never represented among the animals of Egypt,[3] since it is a native of the country, and is even eaten at the present day, in spite of the religious prejudices of the Moslems, by many of the inhabitants of the districts where it lives:—nor can I suggest any reason for this omission, except from its not frequenting those parts where the scenes of

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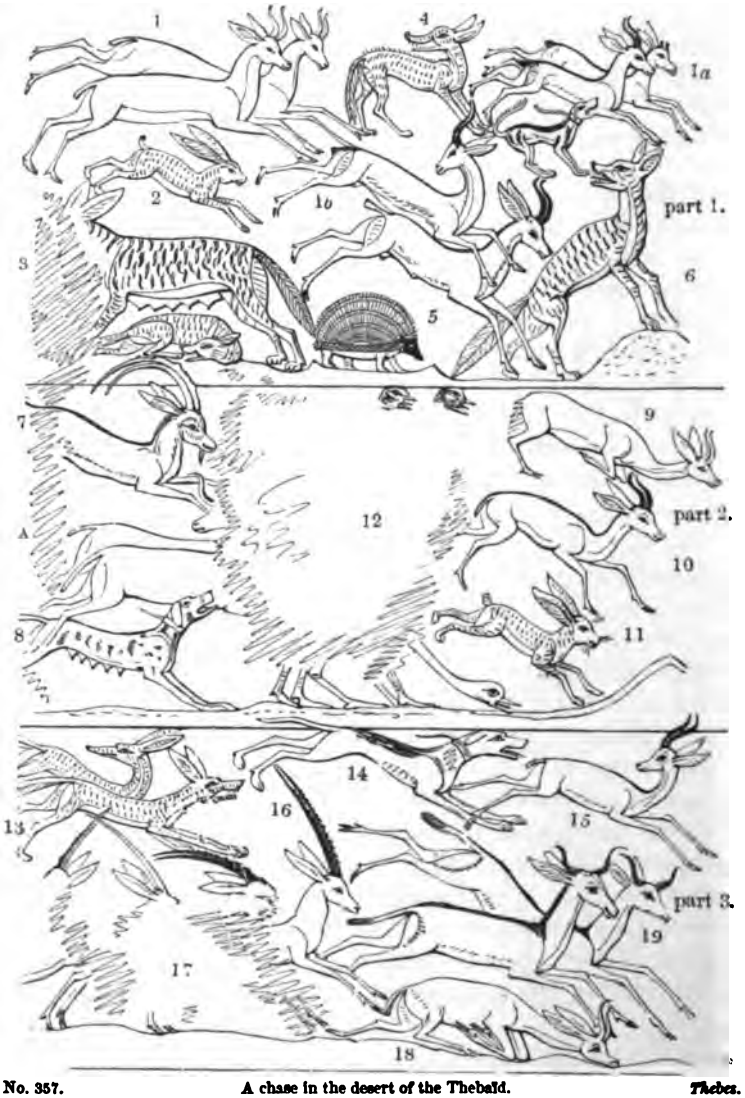
[1] I have not found this animal in Egypt. It is eaten in Italy, and sold in the markets of Rome and other places.

[2] They consider them the emblems of watchfulness. Sometimes they use them with a different view: the rope of their lamps is passed through an ostrich egg-shell in order to prevent rats coming down and drinking the oil, as we were assured by the monks of Dayr Antonios.

[3] The boar is mentioned in the tale of the doomed Prince ('Records of the Past,' ii. p. 153 and foll.), but the scene is laid in Naharaina, or Mesopotamia. The wild sow and pigs are also seen in the bas-reliefs of the palace of Kouyunjik, and were evidently hunted.—S. B.

the chase are laid, being confined to the low marshy spots about the north of the Delta, and the banks of the Lake Mœris. In



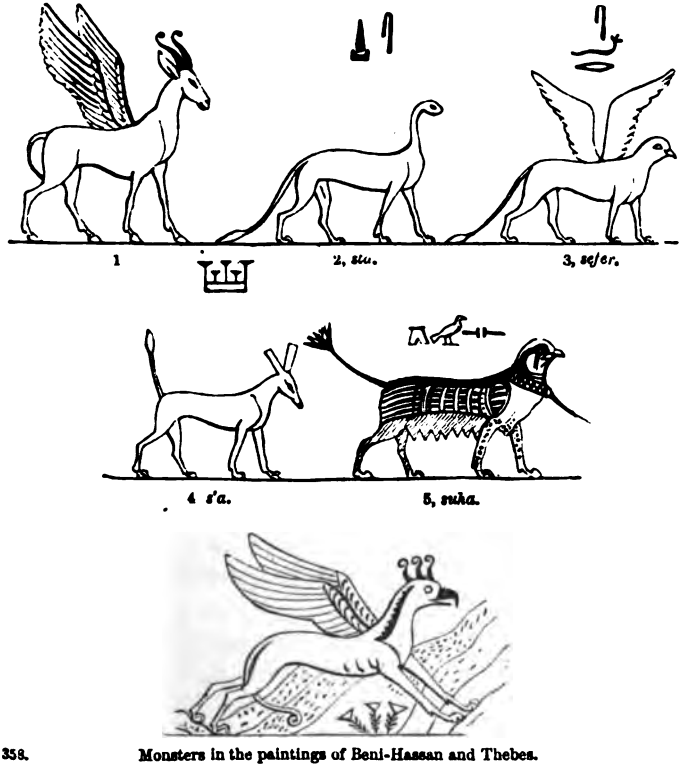
No. 357. A chase in the desert of the Thebaïd. *Thebes.*

To the left of A was the chasseur in his chariot shooting with the bow, now defaced.
Figs. 1, 9, 10, 15, 18. Gazelles. 2, 11. Hares. 3. Female hyæna, with its young. 4, 13. Foxes. 5. Porcupine. 6. Hyæna arrived at the top of a hill and looking towards the chasseur. 7. The ibex. 8, 14. Hounds. 12. Ostriches (defaced). 16. The oryx. 19. Wild oxen.

the Thebaïd it was unknown; the sculptures or paintings of Diospolis relate principally to the vicinity of Upper Egypt, and

the monuments of the Delta and the lower country are too few to enable us to say if it was omitted there. Nor is the wild ass met with in the paintings, either of Upper or Lower Egypt, though it is common in the deserts of the Thebaïd.

Many other animals are introduced in the sculptures, besides those already noticed, some of which are purely the offspring of disordered imagination: and the winged quadrupeds, sphinxes,



No. 358. Monsters in the paintings of Beni-Hassan and Thebes.

or lions, with the head of a hawk or of a snake, and some others equally fanciful and unnatural, can only be compared to the creations of heraldry,[1] or serve as companions to the monsters of Pliny.[2]

The Egyptian sphinx was usually an emblematic figure, representative of the king, and may be considered, when with the

[1] An Austrian nobleman asked an English ambassador at Vienna, whose arms presented a griffin and other monsters, 'In what forest they were met with?' 'In the same,' said the ambassador, 'where you find eagles with two heads.'

[2] Plin. viii. 21.

head of a man and the body of a lion, as the union of intellect and physical force: it is therefore scarcely necessary to observe that they are never female, as those of the Greeks. Besides the ordinary sphinx, compounded of a lion and a man, and denominated androsphinx, were the criosphinx, with the head of a ram, and the hieracosphinx, with the hawk's head and lion's body, —all which are representatives of the king: but the asp-headed and the hawk-headed sphinx with wings do not appear to have been adopted as the same symbol.

Those of the above-mentioned animals which are still found in Egypt, either in the Valley of the Nile, or in the desert, are the gazelle,[1] ibex, *kebsh*, hare, fox, jackal, wolf, and hyæna.

The *oryx*[2] is a native of Ethiopia, as is the spotted hyæna[3] or *marafeén*; which last is once represented in the Egyptian sculptures. The oryx has long annulated horns, tapering to a sharp point, and nearly straight, with a slight curve or inclination backwards. It frequently occurs in the sculptures, being among the animals tamed by the Egyptians, and kept in great numbers in the preserves of their villas.

The *beïsa*[4] is very like the oryx, except in the black marks upon its face, and a few other points; and the *addax*,[5] another antelope, inhabiting Upper Ethiopia, differs principally from the oryx in its horns, which have a waving or spiral form: but these do not appear in the sculptures, unless the Egyptian artists, by an imperfect representation of them, and an inattention to their distinguishing peculiarities, have confounded them[6] with the oryx, or with the wild ox.

This last, which is also of the genus *antilope*,[7] the *defassa* of modern zoologists, though not a native of Egypt, is found in the African desert, and, I believe, in Eastern Ethiopia; it is of a reddish sandy and grey colour, with a black tuft terminating its tail, and stands about four feet high at the shoulder. Though made too much to resemble a common ox in some of the paintings, it is sufficiently evident that the Egyptians had in view the *defassa*, in their representations of this animal:[8] and the Theban sculptors, who had a better opportunity of becoming acquainted

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[1] Woodcut No. 356, *fig.* 6, and No. 357, *figs.* 1, 9, 10, 15, 18.

[2] The *Antilope leucoryx:* woodcut No. 356, *fig.* 2, and No. 357, *fig.* 16.

[3] The *Canis crocutus*, which appears to be the *chaus* of Pliny, or, as some editions have it, *chama:* 'effigie lupi, pardorum maculis' (lib. viii. 19).

[4] *Antilope beïsa.*

[5] *Antilope addax.*

[6] *Fig.* 7 of woodcut No. 356 appears to be the *addax.*

[7] *Antilope defassa.*

[8] Woodcut No. 357, *fig.* 19.

with it, have succeeded in giving its character far more satisfactorily than the painters of Beni-Hassan.[1]

The stag with branching horns,[2] figured at Beni-Hassan, is also unknown in the Valley of the Nile; but I have been assured that it is still seen in the vicinity of the Natron Lakes, though it is not a native of the desert between the river and the Red Sea.

The *ibex*,[3] which is common in the Eastern desert, as far north as the range of the Qalalla and Gebel Aboo-Dúrrag, or latitude 29° 30′, is very similar to the bouquetin of the Alps, and is called in Arabic *beddan* or *táytal*. The former appellation is exclusively applied to the male, which is readily distinguished by a beard and large knotted horns curving backwards over its body, the female having short erect horns, scarcely larger than those of the gazelle, and being of a much smaller and lighter structure.

The *kebsh*, or wild sheep, is found in the Eastern desert, principally in the ranges of primitive mountains, which, commencing about latitude 28° 40′, at the back of the limestone hills of the Valley of the Nile, extend thence into Ethiopia and Abyssinia. The female *kebsh* is between two and three feet high at the shoulder, and its total length from the tail to the end of the nose is a little more than four feet: but the male is larger, and is provided with stronger horns, which are about five inches in diameter at the roots, and are curved down towards the neck. The whole body is covered with hair, like many of the Ethiopian sheep, and the throat and thighs of the fore-legs are furnished with a long pendent mane; a peculiarity not omitted in the sculptures, and which suffices to prove the identity of the *kebsh*,[4] wherever its figure is represented.

The porcupine is not a native of Egypt; nor is the leopard met with on this side of Upper Ethiopia. Bears are altogether unknown, and if they occur twice in the paintings of the Theban tombs, the manner in which they are introduced sufficiently proves them not to have been among the animals of Egypt, since they are brought by foreigners, together with the productions of their country which were deemed rare and curious to the Egyptians. Herodotus is therefore in error respecting the bear[5] as well as the otter;[6] but the Greek name of this last is so

[1] Woodcut No. 355, *figs.* 4 and 5.
[2] Woodcut No. 356, *fig.* 9.
[3] Woodcut No. 356, *fig.* 1.
[4] Woodcut No. 356, *fig.* 10.
[5] Herodot. ii. 67: 'Bears being rare.'
[6] Ibid. ii. 72. May he mean the 'Waran of the river,' the large *Lacerta nilotica*? [He means that ichneumon which is called by Ammianus 'hydrus ichneumonis genus' (xxii. 14, p. 336).—G. W.]

ambiguous, that it may apply to any 'animal inhabiting the water,' which is the signification of the word *enhydris* (ἔνυδρις).

With regard to the Egyptian wolf—which, he says,[1] is small, and 'scarcely larger than a fox'—his statement is fully borne out by fact; and Pliny's remark,[2] that 'those of Egypt and Africa are small and inactive,' is equally just. But it is still more remarkable that in Egypt their habits differ, in one of the principal characteristics of the species, from those of other countries, being so little gregarious; for, though so often in pursuit of them, I never met with more than two together, and generally found them prowling singly over the plain.

M. Sonnini's conclusions respecting the existence of the wolf in Egypt, are hasty and erroneous; and he has perverted the meaning of Herodotus, when he says that the sacred animal of Lycopolis 'was not the wolf, for there are none in Egypt, but the jackal, which seems clearly shown by Herodotus, when he says the wolves in that country are scarcely larger than foxes.' The tombs in the mountain above Lycopolis, the modern E'Sioot,[3] contain the mummies of wolves, many of which I have examined, and ascertained to be of the sacred animals of the place; the ancient sculptures represent them as natives of the country in the earliest times; and the coins of the Lycopolite nome bear a wolf on their reverse, with the word *lycos*, signifying 'a wolf.' It is therefore evident that M. Sonnini is in error as to their not having been natives of Egypt in the time of Herodotus; and since we find them on both sides of the Nile, those now met with there are shown to be indigenous in the country, and not derived from any which may have accidentally strayed from the borders of Syria.

The Egyptian hare is a native of the Valley of the Nile as well as the two deserts. It is remarkable for the length of its ears, which the Egyptians have not failed to indicate in their sculptures; but it is much smaller than those of Europe.

The intelligent Denon has made a just remark on the comparative size of animals common to Egypt and Europe, that the former are always smaller than our own species; and this is exemplified by none more strongly than the hare and wolf.

The *wabber*[4] or *hyrax*, though a native of the eastern desert of

[1] Herodot. ii. 67.

[2] Pliny, viii. 22. Aristot. Hist. An. viii. 28.

[3] I have shown that Aboolfeda and others were wrong in writing this name Osioot, in 'Egypt and Thebes,' p. 389.

[4] By a singular inadvertency, this has been called a gazelle, in M. Léon Dela-

Egypt, is not represented in the sculptures; but this is probably owing to its habits, and to their hunting principally in the valleys of the secondary mountains; the wabber only venturing a short distance from its burrow in the evening, and living in the primitive ranges, where the *seāleh*[1] or acacia grows. It was probably the *saphan*[2] of the Bible, as Bruce has remarked, and that enterprising traveller is perfectly correct in placing it among ruminating animals.

In enumerating the wild beasts of the desert, it may not be irrelevant to observe that the hyæna and wolf are seldom met with in unfrequented districts, or any great distance from the Nile, where they would suffer from want of food, and are therefore principally confined to the mountains lying at most a few miles from the edge of the cultivated land. Once only I have met with the wolf on the coast of the Red Sea; and few even of the watering-places of the interior of the desert are infested by it or the hyæna.

The lion is now unknown to the north of Upper Ethiopia: there, however, it is common, as well as the leopard, the *aboomungár*,[3] and other carnivorous beasts; and the abundance of sheep in those districts amply supplies them with food, and has the happy tendency of rendering them less dangerous to man. In ancient times, however, the lion inhabited the deserts of Egypt,[4] and Athenæus mentions one killed by the Emperor Hadrian, while hunting near Alexandria.[5] They are even said, in former times, to have been found in Syria[6] and in Greece.

Among the animals confined to the Valley of the Nile and its immediate vicinity may be mentioned the ichneumon,[7] which lives principally in Lower Egypt and the Fyoom, and which, from its enmity to serpents, was looked upon by the Egyptians with great respect. Its dexterity in attacking the snake is truly surprising. It seizes the enemy at the back of the neck, as soon as it perceives it rising to the attack, one firm bite sufficing to

borde's 'Petra.' (*Vide* the translation, pp. 106, 107.)

[1] The acacia, or *Mimosa seyál*.

[2] [Levit. xi. 5. It chewed the cud, which the 'coney,' or rabbit, does not, and coney, therefore, is a wrong translation.—G. W.]

[3] The *aboomungár* is said to be in the Egyptian deserts as well as the *sheeh*. I have not been able to discover what these two animals really are: the former was described to me by the Arabs, as having a pointed nose, like a wolf, with the power of springing like a leopard, or rather like a dog, and attacking cattle; the latter was said to have a round head and shaggy neck.

[4] See previous note about the tomb of Ptahhetp, p. 80. [5] Athen. lib. xv. c. 6.

[6] 1 Sam. xvii. 34; 2 Sam. xxiii. 20; 1 Kings xiii. 24.

[7] In Arabic, 'nims,' or 'got Pharaoon,' Pharaoh's cat. It is the *Viverra ichneumon*.

destroy it; and when wounded by the venomous fangs of its opponent, it is said by the Arabs to have recourse to some herb, which checks the effect of the deadly poison.

Of the truth, however, of this commonly credited assertion,[1] I can say nothing; an Arab assured me he had witnessed a fight between a large venomous snake and an ichneumon, which last, whenever it received a bite, ran to a small plant, of which it ate a part, rubbing the wound against the leaves, and then returned to renew the combat; and in order to ascertain the reality of its effect, he plucked up and removed the plant, and having waited to see the wounded animal return in vain to seek it, he became convinced, by its death, that the herb alone had previously saved its life. The Arabs, however, frequently consult their imagination more than their love of truth, and, like many authors of amusing tales, they tell their stories till they believe them true.

The ichneumon[2] is easily tamed, and is sometimes seen in the houses of Cairo, where, in its hostility to rats, it performs all the duties of a cat; but, from its indiscriminate fondness for eggs, poultry, and many other requisites for the kitchen, it is generally reckoned troublesome, and I have often found reason to complain of those I kept.

Eggs are its favourite food, and it is said to have been greatly venerated by those who held the crocodile in abhorrence, in consequence of its destroying the eggs of that hateful animal:[3] but it is now rarely met with in places where the crocodile abounds; and we may conclude that at all periods its principal recommendation was its hostility to serpents. It is frequently seen in the paintings, where its habits are distinctly alluded to by the Egyptian artists, who represent it in search of eggs, among the bushes, and the usual resorts of the feathered tribe.

The wild cat, the *Felis chaus* of Linnæus, is common in the vicinity of the Pyramids and Heliopolis, but it does not occur among the pictured animals of ancient Egypt. Nor is the *jerboa*,[4] so frequently met with both in the upper and lower country, represented in the sculptures.

The giraffe was not a native of Egypt, but of Ethiopia, and

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[1] They have the same notion in India.

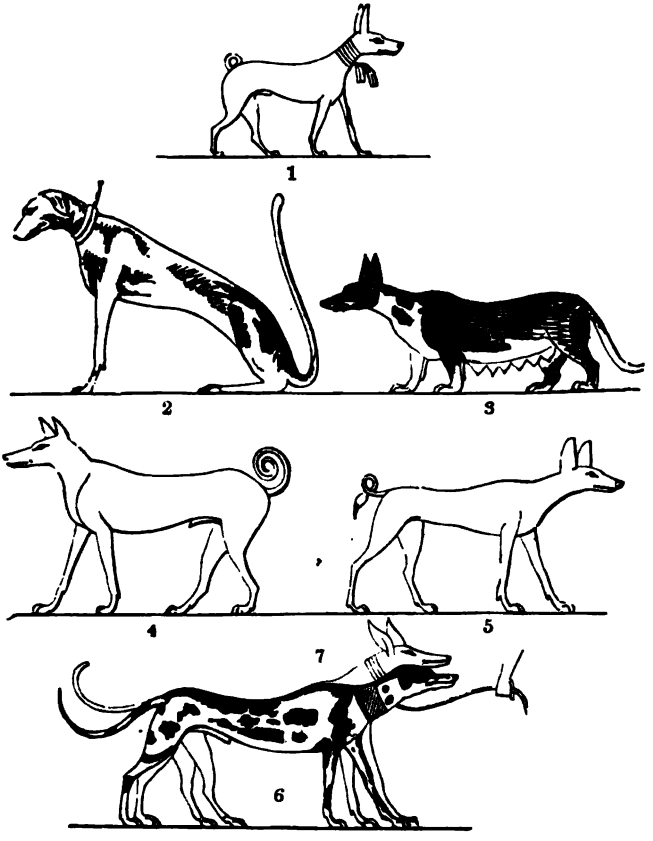
[2] It is often introduced in the sculptures. Woodcut No. 356, *fig.* 20; and in woodcut No. 365 it is represented carrying away a young bird from the nest.

[3] Diod. i. 35.

[4] *Dipus jaculus.* It is eaten by the Arabs of Africa. Bruce with great reason supposes it to be the mouse mentioned in Isaiah lxvi. 17.

is only introduced in subjects which relate to that country, where it is brought with apes, rare woods, and other native productions, as part of the tribute annually paid to the Pharaohs.

The Egyptians had several breeds of dogs, some solely used for the chase, others admitted into the parlour, or selected as the companions of their walks; and some, as at the present day, selected for their peculiar ugliness. All were looked upon with



No. 359. Various kinds of dogs, from the sculptures.

veneration, and the death of a dog was not only lamented as a misfortune, but was mourned by every member of the house in which it occurred.

The most common kinds were a sort of fox dog and a hound; they had also a short-legged dog not unlike our turnspit, which was a great favourite in the house, especially, it appears, in the

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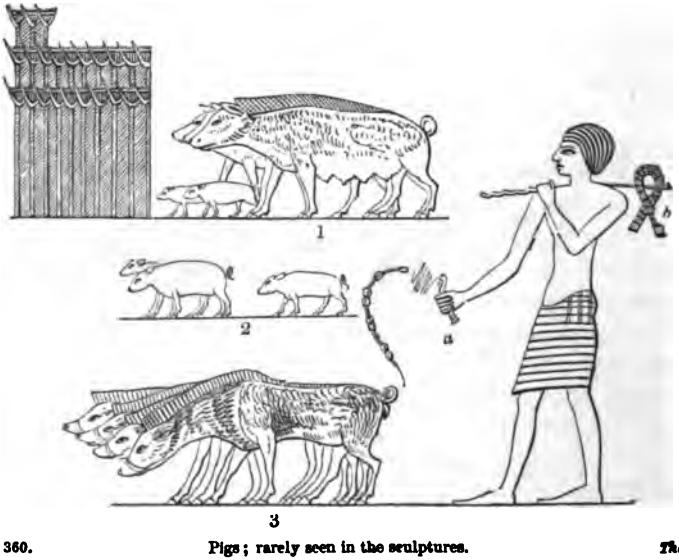
time of Usertesen; and it is possible that, as in later days, the choice of a monarch led the taste or fashion of the time to fix upon a particular breed. Of the fox dog, I have found several mummies in Upper Egypt, and it is reasonable to conclude that this was the parent stock of the modern red wild dog of Egypt, which is so common at Cairo and other towns of the lower country.[1]

Herds of cattle and flocks of sheep[2] and goats were numerous; and pigs, though unclean[3] and an abomination to the Egyptians,



No. 360. Pigs; rarely seen in the sculptures. Thebes.

Fig. 1. Sows with young pigs. 2. Young pigs. 3. Boars.
a is a whip, knotted like some of our own. *b*, a *gayd*, or noose.

frequently formed part of the stock of the farmyard, but they are more rarely represented in the sculptures than other animals. Their cattle were of different kinds, of which three principal dis-

[1] An account of the different kinds of dogs represented in the sculptures is given in the 'Transactions of the Society of Biblical Archæology,' vol. iv. p. 172, and foll. Those on the tomb of Antefaa resemble a Dalmatian hound, a dog half wolf, like that found in Northern China, a mastiff, and a house-dog or pet. The hound was called *tasem*; the ordinary dog, *uhar*; another kind was called *uns'*, either the wolf-dogs, or dogs so like wolves that they were indistinguishable; another kind of dog was the *uau*, or *fuau*. In the hieratic papyri packs of 200 and 300 of these dogs are mentioned. A boar-hound appears to be mentioned in the tale of the 'Doomed Prince.'—S. B.

[2] I have already observed, on the authority of Diodorus, that sheep in Egypt were twice shorn, and twice brought forth lambs in the year; as at the present day. Homer says those of Libya had lambs thrice in a year (Od. Δ, 86).

[3] Herodot. ii. 47.

tinctions are most deserving of notice, the short, the long-horned cattle, and the Indian or humped ox: and the last two, though no longer natives of Egypt, are common to this day in Abyssinia and Upper Ethiopia.[1]

Horses[2] and asses were abundant in Egypt, and the latter were employed as beasts of burden, for treading out corn, particularly in Lower Egypt, and for many other purposes. Like those of the present day, it is probable that they were small, active, and capable of bearing great fatigue; and, considering the trifling expense at which these hardy animals were maintained, we are not surprised to find that they were kept in great numbers in the agricultural districts, or that one individual had as many as seven hundred and sixty employed in different parts of his estate.

Egyptian horses were greatly esteemed; they were even exported to neighbouring countries, and Solomon bought them at a hundred and fifty shekels of silver,[3] from the merchants who traded with Egypt by the Syrian desert.

It is remarkable that the camel, though known to have been used in and probably a native of Egypt as early at least as the time of Abraham (the Bible distinctly stating it to have been among the presents given by Pharaoh to the patriarch[4]), has never yet been met with in the paintings or hieroglyphics.[5] We cannot however infer, from our finding no representation or notice of it,[6] that it was rare in any part of the country, since the same would apply to poultry, which, it is scarcely necessary to observe, was always abundant in Egypt: for no instance occurs in the sculptures of fowls or pigeons, except as carriers in the coronation ceremonies among the stock of the farmyard, though geese are repeatedly introduced, and numbered in the presence of the stewards.[7]

The mode of rearing poultry, and the artificial process of hatching the eggs of fowls and geese, I have already mentioned

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[1] A hornless variety was also known.—S. B.

[2] Not till after the 18th Dynasty.—S. B.

[3] 1 Kings x. 28, 29.

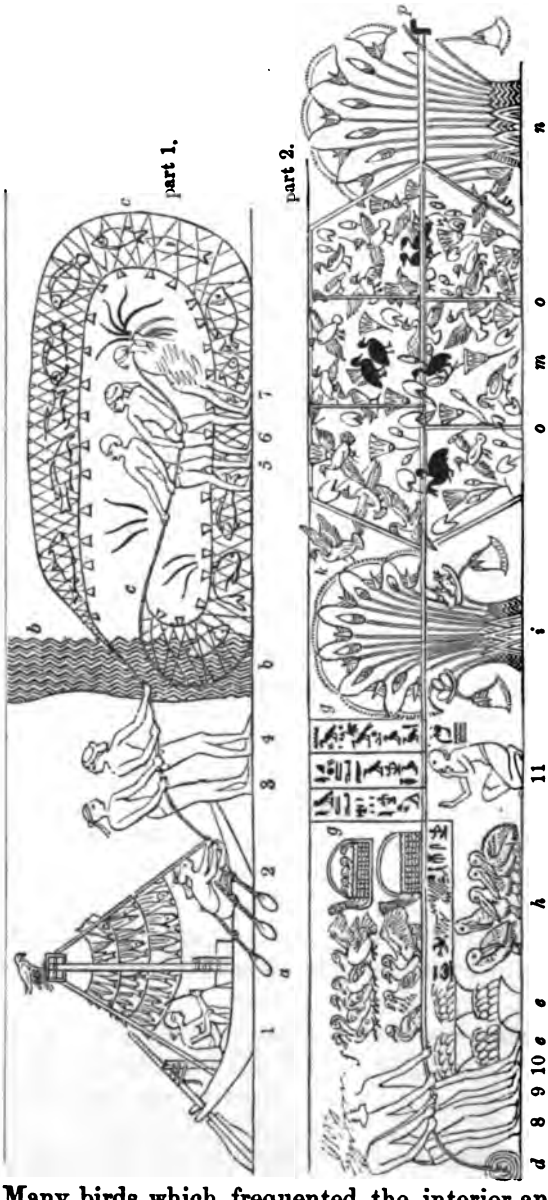
[4] Gen. vii. 16. The name in Hebrew is the same by which the animal is known in Arabic, *gemel*, *gemelim*, גְּמַלִּים. *Vide* also Exod. ix. 3.

[5] It is, however, mentioned in the hieratic papyri by its name *kamalu* (Chabas, 'Voyage d'un Égyptien,' p. 220), and its flesh was eaten in Palestine, but it was not introduced into Egypt.—S. B.

[6] I have a stone seal found in Nubia, on which two camels are rudely engraved, but it is of uncertain date.

[7] An account of the animals represented in the early tombs is given by Dr. Hartmann in Duemichen's 'Resultate,' p. 28 and foll.—S. B.

in a former work,[1] where I have shown the method adopted by the Copts from their predecessors.[2]



No. 361.

Part 1. *a*. The boat, with the fish hanging up to dry in the sun and wind; on the top of the mast sits a kite. The manner in which it shrieks, while waiting for the entrails of the fish, as they are thrown out, is very characteristically shown in the original painting. The boat is supposed to be close to the shelving bank to which they are dragging the net. The water is represented by zigzag lines at *b*, which, to prevent confusion, I have not continued over the net.

Part 2. *Figs.* 8, 9, 10, pull the rope that the net may collapse; 11 makes a sign with his hand to keep silence and pull: at *p* the rope is fixed: at *f*, *g*, *r*, are geese and baskets of their young and eggs: *h* are pelicans: *i* and *n*, plants, probably the papyrus.

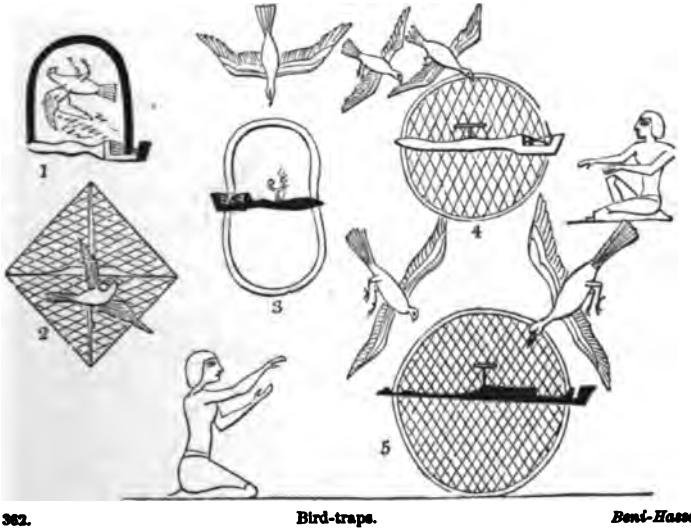
Many birds which frequented the interior and skirts of the

[1] 'Egypt and Thebes,' pp. 245, 246.

[2] Diod. i. 74. Pliny, x. 54.

desert, and were highly prized for the table, were caught in nets and traps by the fowlers, as the partridge, *gutta*,[1] bustard,[2] and quail;[3] and water-fowl of different descriptions, which abounded in the valley of the Nile, afforded endless diversion to the sportsman, and profit to those who gained a livelihood by their sale.

Fowling was a favourite amusement of all classes; and the fowlers and fishermen, as I have already observed, were subdivisions of one of the castes. They either caught the birds in large clap-nets,[4] or in traps; and they sometimes shot them with arrows, or felled them with a throw-stick, as they flew in the thickets.



No. 362. Bird-traps. *Beni-Hassan.*

Fig. 1. Trap closed and the bird caught in it; the network of it has been effaced, as also in *fig.* 3. The other traps are open.

The trap[5] was generally made of network, strained over a frame. It consisted of two semicircular sides or flaps, of equal sizes, one or both moving on the common bar or axis upon which they rested. When the trap was set, the two flaps were kept open by means of strings, probably of catgut, which, the moment the bait that stood in the centre of the bar was touched, slipped aside, and allowed the two flaps to collapse, and thus secured the bird.

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[1] The *Pterocles melanogaster*. (*Vide* 'Egypt and Thebes,' p. 245.)
[2] The *Otis hebara*.
[3] Herodot. ii. 77; Diod. i. 60; and the sculptures.
[4] Woodcut No. 361, part 2.
[5] Woodcut No. 362.

Another kind, which was square, appears to have closed in the same manner; but its construction was different, the framework running across the centre, and not, as in the others, round the edges of the trap.

If their skill in making traps is not proved in those used by the fowlers, it may at least be inferred from that in which the robber was caught in the treasury of Rhampsinitus;[1] since the power of the spring, or the mechanism of the catch, was so great that his brother was unable to open it or release him.

No. 363. A sportsman using the throw-stick. Thebes.

Figs. 2 and 3. His sister and daughter. 4. A decoy bird. 5, 5. Birds struck with the stick.

They do not seem to have used the bow very generally to shoot birds, nor was the sling adopted, except by gardeners and peasants to frighten them from the vineyards[2] and fields. The use of the throw-stick[3] was very general, every amateur chasseur

[1] Vol. i. p. 82.

[2] Woodcut No. 156, vol. i. p. 381.

[3] The Irish frequently use it for the same purpose.

priding himself on the dexterity he displayed with this missile: and being made of heavy wood, flat, and offering little surface[1] to the air in the direction of its flight, the distance to which an expert arm could throw it was considerable; though they always endeavoured to approach the birds as near as possible, under the cover of the bushes or reeds. It was from one foot and a quarter to two feet in length, and about one inch and a half in breadth, slightly curved at the upper end; and its general form may be inferred from one found at Thebes by Burton,[2] from those in the Berlin Museum, and from the sculptures.

On their fowling excursions, they usually proceeded with a party of friends and attendants, sometimes accompanied by the members of their family, and even their young children, to the jungles or thickets of the marsh-lands, or to the lakes of their own grounds, formed by the waters of the overflowing Nile, at the period of the inundation, when wild fowl was more abundant than at any other season of the year; and seated in punts made of the papyrus,[3] or rushes of various kinds, they passed without disturbing the birds amidst the lofty reeds which grew in the water, and masked their approach. This sort of boat was either towed, pushed by a pole, or propelled by paddles; and a religious prejudice induced the Egyptians to believe that persons who used it were secure from the attacks of crocodiles:[4] a story which can be more readily believed and explained, when we remember that they principally used these boats in the lakes and inland canals, where crocodiles were seldom seen.[5]

The attendants collected the game as it fell, and one of them was always ready to present a fresh stick to the chasseur, as soon as he had thrown. They frequently took with them a decoy bird, which was posted in a convenient place: and in order more

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[1] [Like the boomerang of Australia.—G. W.]

[2] Now in the British Museum, No. 5463.

[3] Conf. Lucan, iv. 136.

[4] Plut. de Isid. s. 18: 'Isis . . . made use of a boat constructed of the reed papyrus, in order to pass more easily through the fenny parts of the country, whence, they say, the crocodile never touches any persons who go in this sort of vessel.'

[5] In the hieratic papyrus relating to the praise of learning the following description of the boatman and the fowler occurs:—'The poulterer navigates to Athu'—the marsh-lands of the Delta—that he may 'get his price; he has gone beyond the power of his hands in going to kill geese and flamingoes.' ('Records of the Past,' viii. p. 153.) And again (ibid. pp. 152, 153): 'The fowler of birds suffers very much; he does not see the birds should Num'—the god of the waters—'pass to the upper heaven, where he says, Let the net refuse. The god wills not to show his forms; vain are his plans.'—S. B.

effectually to prevent its quitting the post assigned to it, a female was selected for the purpose, whose nest, containing eggs, was brought with it and deposited in the boat. [They also had an ingenious mode of carrying live birds, as will be seen by the annexed woodcut. The beak was strapped down to the neck, and the feet to the body, so that the bird could neither flutter nor escape. This appears only to have been used for a single bird; for when they were numerous, if not killed at once, they were put into square cages.—S. B.]

Mode of carrying a live bird. No. 364.

A favourite cat sometimes attended them on these occasions; and from the readiness with which it is represented to have seized the game, the artist has intended to show that those animals acted as retrievers, or were trained to catch the birds; being let out of the boat into the thickets which grew at the water's edge. Though making every allowance for the great skill attributed to the Egyptians in taming and training animals, it is difficult to persuade us that the cat could be induced, on any consideration, to take the water in quest of a fallen bird.

That cats, as well as dogs, were looked upon with great esteem by the Egyptians is evident from the care they took to preserve and embalm them, and from the express statements of ancient writers. Herodotus [1] mentions the concern they felt at their loss, and the general mourning that ensued in a house, even if they died a natural death; every inmate being obliged to shave his eyebrows, in token of sorrow, for the loss of a cat, and the head and whole body for the death of a dog. When ill, they watched and attended them with the greatest solicitude: and, if any person purposely, or even involuntarily,[2] killed one of these revered animals, it was deemed a capital offence; neither could all the influence of the magistrates, nor even the dread of the Roman name, prevent the people from sacrificing to their resentment an incautious Roman who had killed a cat, though it was evident that he had done it unintentionally.

[1] Herodot. ii. 66. [2] Diod. i. 83.

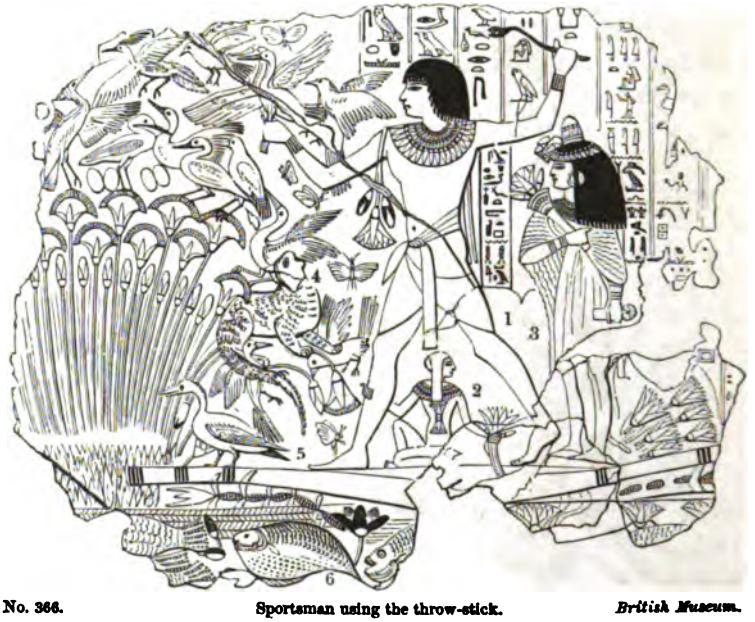
'So deeply rooted in their minds,' says Diodorus, 'was the superstitious regard for the sacred animals, and so strongly were

No. 365. Part 1. Fowling scene. Part 2. Spearing fish with the bident.

1. An amateur sportsman throwing the stick.
2. His son, holding a fresh stick ready, and carrying the game.
3, 4. His daughters or sisters. 5. Another son, carrying the game.
6. A decoy bird, with its nest in the boat.
7. An ichneumon, carrying away a young bird from a nest.
8. Two bulti fish speared with the bident of *fig.* 11.
9, 10. Butterflies and dragon-flies.
12. His sister, holding a spear.
13. His son, holding a spear, and carrying the fish strung upon a water-plant.
The cat appears as if begging to be let out of the boat into the thicket.

The same person is represented, and the hieroglyphic inscriptions record the action of fishing and fowling and his name, Mutes, third priest of Amen, superintendent of the treasury, who is accompanied by his sister Bail, a virgin of Amen, and his son User ha.

the passions of every one bent upon their honour, that, even at this time, when Ptolemy had not yet been called a king by the Romans, and the people were using every possible effort to flatter the Italians who visited the country as strangers, and studiously avoided anything which could excite disputes or lead to war, on account of their dread of the consequences, they positively refused to restrain their anger, or to spare the offender.'



No. 366. Sportsman using the throw-stick. *British Museum.*

Fig. 2 keeps the boat steady by holding the stalks of a lotus. 4. A cat seizing the game in the thicket. 5. A decoy bird. 6. Water and fish.

Some remains of this prejudice in favour of the cat[1] may still be traced among the modern Egyptians, who even allow it to eat from the same dish,[2] and to be the constant companion of their children; though the reputed reason of their predilection for this animal is its utility in watching and destroying scorpions, and other reptiles, which infest the houses.[3]

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[1] They are much more tractable and attached in Egypt than in Europe. The cat and dog are not there the emblems of discord.

[2] This is a general custom with the Moslems.

[3] Cats are occasionally represented seated under the chairs of persons in sepulchral scenes, and petted like monkeys and dogs. The name of the cat was *mau*, and it was specially sacred to Bast, or Bubastis, the Egyptian Artemis, the beloved of Ptah, and the mother of Neferatum. It is strange that it was not known in Greece at an early period, considering the intimate relations between that country and

Dogs are not regarded by them with the same feelings; they are considered unclean, and are seldom admitted into the house, except by some persons of the Málekee sect, who do not, like the Shaffaees and Hanefees, consider themselves defiled by their touch. But though they draw this marked distinction between them, the character given to the two animals appears to be in favour of the dog; which they represent, in the true spirit of Oriental fable, when asked hereafter respecting the treatment it received from man, concealing all the numerous injuries it has received, and magnifying the few benefits, while the cat is supposed to deny the obligations conferred upon it, and to endeavour to detract from the merits of its benefactor.

Though the death of a cat is not attended with lamentations or funeral honours, it is looked upon by many of the modern Egyptians to be wrong to kill, or even to ill-treat them: and some have carried humanity so far as to bequeath by will a fund for their support, in compliance with which these animals are daily fed in Cairo at the Cadi's court, and the *bazár* of Khan Khaleel.

The clap-net was of different forms, though on the same general principle as the traps already mentioned. It consisted of two sides or frames, over which the network was strained; at one end was a short rope, which they fastened to a bush or a cluster of reeds, and at the other was one of considerable length, which, as soon as the birds were seen feeding in the area within the net, was pulled by the fowlers, causing the instantaneous collapse of the two sides.[1] The Egyptian nets were very similar to those used in Europe at the present day, but probably larger, and requiring a greater number of persons to manage them than our own: this, however, may be attributed to an imperfection in their contrivance for closing them.

As soon as they had selected a convenient spot for laying down the net, in a field or on the surface of a pond, the known resort of numerous wild fowl, they spread open the two sides or flaps, and secured them in such a manner that they remained flat upon the ground until pulled by the rope. A man, crouched behind some reeds growing at a convenient distance from the spot, from which he could observe the birds as they came down, watched the net,[2] and enjoining silence by placing his hand over

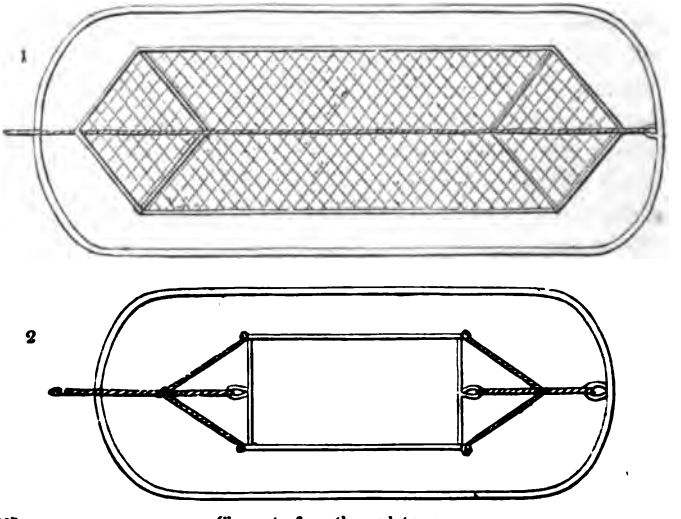
Egypt; but the weasel was employed in Greece for the same purpose as the cat in the Valley of the Nile.—S. B.

[1] Woodcut No. 361, part 2.

[2] He was styled Λινόπτης by the Greeks. (J. Pollux, Onom. v. 4.)

his mouth, beckoned to those holding the rope to keep themselves in readiness, till he saw them assembled in sufficient numbers, when a wave of his hand gave the signal for closing the net.[1]

The sign adopted by the Egyptians to indicate silence is evidently shown, from these scenes, to have been given by placing the hand over the mouth;[2] not, as generally supposed,[3] by approaching the forefinger to the lips; and the Greeks errone-



No. 367. Clap-nets, from the sculptures.

ously concluded, that the youthful Harpocrates was the deity of silence, from his appearing in this attitude;[4] which, however humiliating to the character of a deity, was only illustrative of his extreme youth, and of a habit common to children in every country, whether of ancient or modern times.

Some nets were of a single piece, stretched over a frame; others were furnished with additional sections of a diamond shape,[5] and in some the interior portion was surrounded by an outer

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[1] The net was called *aat* by the ancient Egyptians: it is often mentioned in the inscriptions and texts.— S. B.

[2] [Conf. Job xxix. 9: 'They laid their hand on their mouth,' &c.— G. W.]

[3] And by Plutarch, de Isid. s. 68.

[4] Harpocrates does *not* place his finger in his *mouth*. In the numerous bronze figures of this deity, the index or fore finger of his right hand is always put on the chin, and not raised to the mouth; it may rather be considered that he points to the mouth, than that he places his finger in it.—S. B.

[5] This calls to mind the nets mentioned by J. Pollux (v. 4), of which a square part termed the *βρόχος* became *ῥομβοειδής*, of a rhomboidal figure, as soon as the net (*ἄκυς*) was stretched.

circuit of an oval form, to which the ring of the rope was attached.

It is probable that the ancient Egyptians adopted the same ingenious method of catching ducks, widgeons, and other water-fowl, as the modern inhabitants of Lower Egypt;[1] who, when the inundation covers the lands, creep unperceived to the water's edge, and placing a gourd upon their head, with two holes cut in front, through which they look, swim towards the unsuspecting birds, and taking them one after another by the legs, suddenly pull them under the water, and tie them to their girdle; thus, in a short space of time, securing great numbers without alarming the rest.

The birds taken in nets were principally geese, ducks, quails,[2] and some small kinds which they were in the habit of salting, especially in Lower Egypt, where Herodotus[3] tells us they 'ate quails, ducks, and small birds undressed, having merely preserved them in salt, living at the same time on all sorts of birds and fish, not reckoned sacred, which were eaten either roasted or boiled.' For though geese constituted a very great portion of the food of the Egyptians, both in the upper and lower country, and are more frequently represented in the sculptures than any bird, it is not to be supposed that they were preferred to the exclusion of others; and besides poultry and pigeons, which abounded in Egypt, many of the wading tribe, the curlew, the *ardea*, and several others were esteemed for the table, and even introduced among the choice offerings presented to the gods. The practice of salting birds, in a country like Egypt, may, perhaps, be considered singular; but confirmation of the statement of Herodotus is derived from the sculptures, where some poulterers appear to be in the act of preserving them in this manner, and depositing them in jars.[4]

Independent of the birds taken in nets and by other means, the Egyptian poulterers supplied the market with the eggs of those most in request; they also reared the young after the eggs were hatched (which was frequently done, as already observed, by an artificial process), and these were sold to supply the poultry-yards of the rich, whose stock of wild fowl was often numerous.

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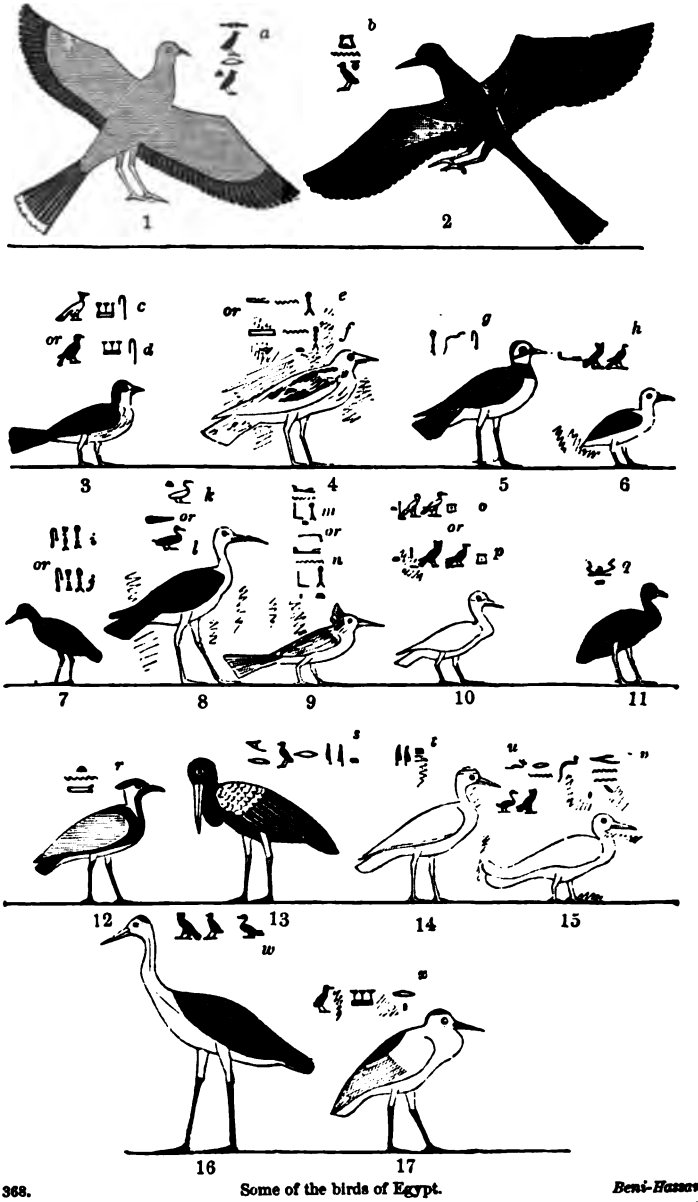
[1] The same is done in India.

[2] [Quails were much prized when taken at Rhinocolura (Diodorus, i. 60). They were, as we know, esteemed by the Israelites. They are common in the valley of the Nile, and in the desert.—G. W.]

[3] Herodot. ii. 77.

[4] Woodcut No. 99. Smoked geese, dried and kept for the table, are in use at the present day.

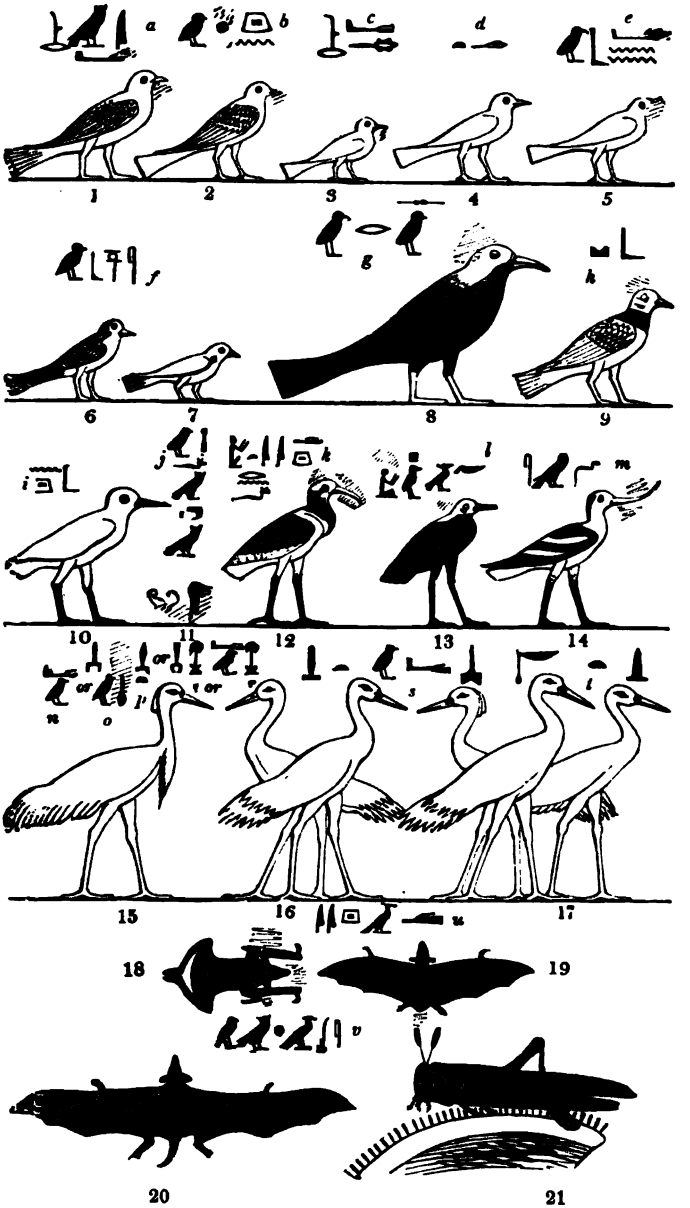
The various birds represented in the Egyptian sculptures cannot always be recognised with certainty, in consequence of



No. 368. Some of the birds of Egypt. *Beni-Hassan.*

1. *surut.* 2. *ḳannu.* 3. *s'sa.* 4. *ḳan. t.* 5. *st'eh.* 6. *amd.* 7. *seḳeḥ.* 8. *as t.* 9. *ânkeb.* 10. *kambet.* 11. *uat.* 12. *tent.* 13. *meruri.* 14. *t.* 15. '*tenen t*' is its name. 16. *mesa.* 17. *rus'au.*

the loss of the colours, or a want of skill in their artists, who,



No. 369. Some of the Fauna of Egypt. *Beni-Hassan, and the tombs near the Pyramids*

1. *amā.* 2. *kannut.* 3. *ăγa.* 4. *ārt.* 5. *ānbu.* 6. *sabu.* 8. *suru.* 9. *bakū.* 10. *benha.* 11. *kuku em . . .* 12. *'tekut'* is its name. 13. *kupu.* 14. *t'ame.* 15–17. *ău(n) tu(o) t'au(p) utā(s).* 19. *tekut.* 20 *σταυρόνοτος.*

Figs. 18, 19, 20. Bats. 21. The locust. *From Thebes.*

disregarding the intermediate hues, adopted certain fixed colours, in a conventional manner, as an approximation; and unless the character of the birds is so marked as to be readily distinguished by a simple outline, it is often difficult to identify them.

In some, however, there is sufficient to guide us without the necessity of conjecture, and these I shall notice in their proper order, without distinguishing between such as were forbidden or admitted at an Egyptian table.

BIRDS OCCURRING IN THE SCULPTURES.

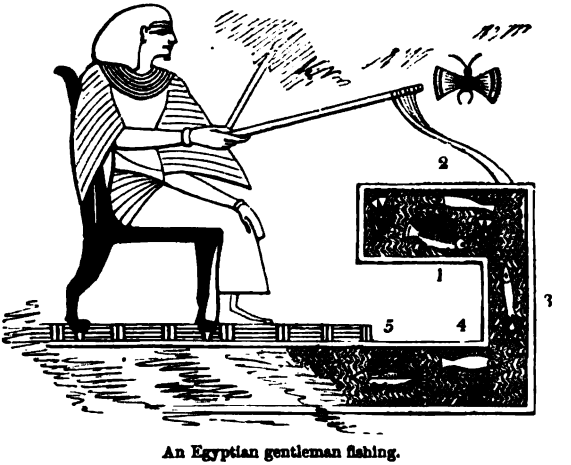
1. Raptores.	
Vultur Nubicus.	The large vulture of Egypt and Nubia, which occurs frequently on the ceilings and sculptures of the temples.
Vultur percnopterus.	The small white vulture, called also Pharaoh's hen.
Aquila.	The eagle.
Falco cinereo-ferrugineus. *Fors.*	The kite, or *Milvus. Falco ardea* of Savigny.
Falco ———— ?	The sacred hawk.
Falco tenunculoides.	The common brown hawk.
Bubo maximus.	Horned owl.
Strix flammea.	White owl.
Strix passerina.	Small owl.
2. Insessores.	
Lanius excubitor?	Great shrike, or butcher bird?
Corvus corax.	The raven.
Corvus cornix.	The Royston crow.
Turdus viscivorus.	Missel thrush.
Alauda cristata.	Crested lark.
Alauda arenaria.	Sand-coloured lark.
Upupa epops.	Hoopoe.
Hirundo rustica.	The swallow.
Alcedo hispida.	Common king-fisher.
Fringilla; several species.	Finches.
3. Rasores, or Gallinaceous.	
Columba turtur.	Turtle-dove.
Pterocles melanogaster.	The *Gutta*.[1]
Perdix coturnix.	The quail.
Otis Hebara?	Ruffed bustard?
Struthio camelus.	The ostrich.
4. Grallatores, wading birds.	
Ardea garzetta.	Small white stork: the *A. Virgo* of Hasselquist.
Ardea cinerea.	Grey heron.
Ardea ciconia.	White stork.
Ardea nigra; and some other species.	Black stork (woodcut No. 369, *fig.* 13).
Numenius, Ibis.	The ibis.
Platalea.	Spoonbill.
Cheradrius armatus.	Spur-winged plover.
Scolopax gallinago.	Snipe.
Fulica atra.	The common coot.

[1] This name has been given it in Arabic from the noise it makes when alarmed and flying.

5. Natatores, swimming birds.

Anser Ægyptius; and other species.	Egyptian goose.
Anas; various species.	Ducks.
Anas crecca.	Teal.
Recurvirostra avosetta.	Avoset.
Pelicanus onocrotalus.	The pelican.

Many other birds are figured in the sculptures; but as it is difficult to determine the exact species to which they belong, I shall not hazard any conjecture upon their names, having noticed those which most commonly occur. In the tombs of Thebes and Beni-Hassan the Egyptians have not omitted to notice bats, and even some of the insects, which abound in the Valley of the Nile; and the well-known locust,[1] the butterfly[2] and the beetle are occasionally introduced in the fowling scenes and in sacred subjects.



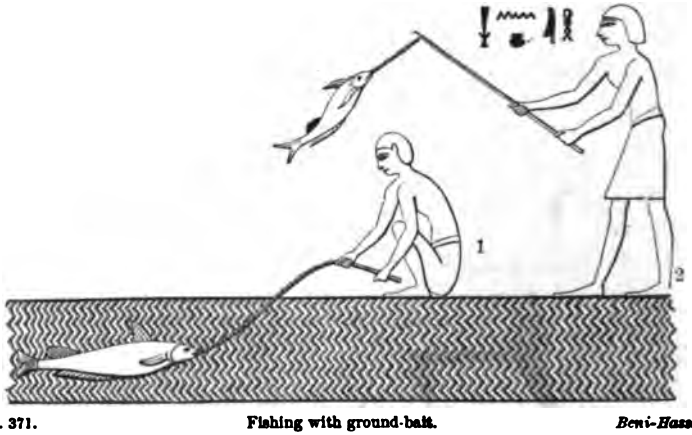
No. 370. An Egyptian gentleman fishing. *Thebes.*

Fishing was an amusement in which the Egyptians particularly delighted; and not contented with the abundance afforded by the Nile, they constructed within their grounds spacious 'sluices and ponds for fish,'[3] like the *vivaria* of the Romans, where they fed them for the table, and where they amused themselves by angling[4] and by the dexterous use of the bident.

These favourite occupations were not confined to young

[1] Woodcut No. 369, *fig.* 21.
[2] Woodcuts Nos. 365, 366, and 370.
[3] Isaiah xix. 10.
[4] Isaiah xix. 8.

persons, nor thought unworthy of men of serious habits; and an Egyptian of consequence is frequently represented in the sculptures, catching fish in a canal or lake with the line, or spearing them as they glided past the bank. Sometimes the angler posted himself in a shady spot at the water's edge, and, having ordered his servants to spread a mat upon the ground, he sat upon it as he threw the line; and some with higher notions of comfort used a chair for the same purpose. The rod was short, and apparently of one piece; the line usually single, though instances occur of a double line, each furnished with its own hook, which, judging from those I have found, was of bronze.



No. 371. Fishing with ground-bait. *Beni-Hassan.*

These fish are the *shilbeh*, or rather the *arábrab*. The inscription reads *sénnu aha*, 'the brothers,' or 'the two anglings.'

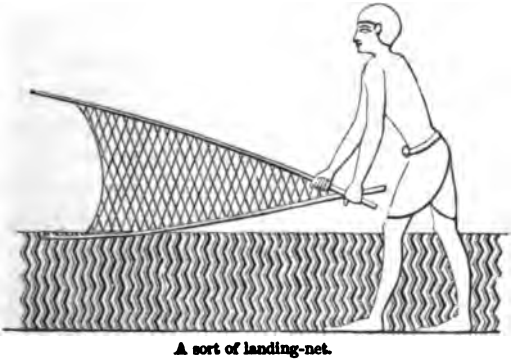
The fishermen—who, as I have observed, composed one of the subdivisions of the Egyptian castes, and who gained their livelihood by fishing—generally used the net in preference to the line, but on some occasions they employed the latter, seated or standing on the bank. It is, however, probable that these were people who could not afford the expense of nets; and the use of the line is generally confined, in like manner, at the present day, to the poorer classes,[1] who depend upon skill or good fortune for their subsistence.

In all cases they adopted a ground bait, as is still the custom in Egypt, without any float; and though several winged insects are represented in the paintings hovering over the water, it does

[1] Vignette D, at the head of chap. iv. vol. i.

not appear that they ever put them to the hook, and still less that they had devised any method similar to our artificial fly-fishing; which is still unknown to the Egyptians, though the fish of the Nile are occasionally seen to rise to insects on the water's surface. Ælian[1] mentions the *thrissa*, a fish of the Marea Lake, which was caught by singing to it, and the sound of crotala made of shells. The fish dancing up leapt into the nets spread for them, giving 'great and abundant sport.'

The ordinary Egyptian net has been already mentioned,[2] as well as the mode of dragging it to the shore; but it sometimes happened that they used a smaller kind for catching fish in shallow water, furnished with a pole on either side,[3] to which it was attached; and the fisherman, holding one of the poles in



No. 372. A sort of landing-net. Thebes.

either hand, thrust it below the surface of the water, and awaited the moment when a shoal of fish passed over it; the same being probably used for landing those which had been wounded with the spear, or entangled with the hook.[4]

When they employed the drag-net, and even when they pulled it to the shore, a boat sometimes attended, in which the fish were deposited as soon as they were caught: those intended for immediate use, to be eaten fresh, being sent off to market when the day's sport was finished; and the others being opened, salted, and hung up to dry in the sun.[5]

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[1] Ælian, vi. 32.

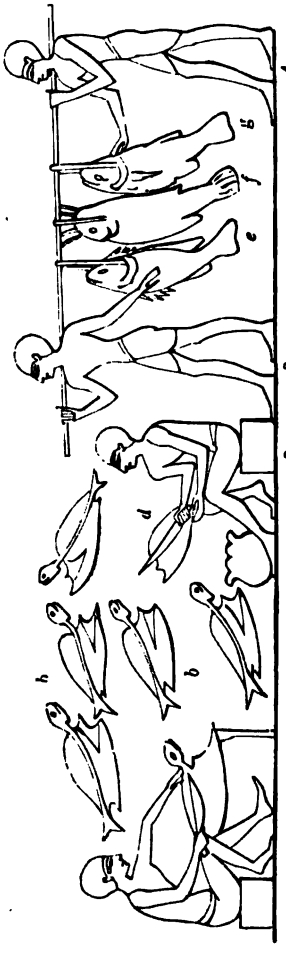
[2] It was called *aat*.

[3] [A net of this form is used in India; and in Southern Spain one precisely similar is attached to the bowsprit of a boat, which is moored in tidal rivers, and the net is let down at the flow.—G. W.]

[4] Woodcut No. 372.

[5] In the 'Praise of Learning' the scribe says, 'I tell you the fisherman suffers more than any employment: consider, is he not toiling on the river? He is mixed up with the crocodiles: should the clumps of papyrus diminish, then he is crying out for help; if he has not been told a crocodile

Some were cut in half, and suspended on ropes for this purpose, the passing current of air being found to accelerate the process; sometimes the body was simply laid open with a knife from the head to the tail, the two sides being divided as far as the backbone; and in many instances the process consisted solely in taking out the intestines, and removing the head and tip of the tail, and exposing them, when salted, to the sun.



Bringing in fish and opening them, preparatory to their being salted. *In a tomb near the Pyramids.*

No. 373.

When caught, the small fish were generally put into baskets, but those of a larger kind were suspended to a pole, borne by two or more men over their shoulders; or were carried singly in the hand, slung at their back, or under the arm; all which methods I have seen adopted by the modern fishermen, at the Cataracts of E'Sooan, and in other parts of Egypt.

Salted[1] as well as fresh fish were much eaten[2] in Egypt, both in the Thebaïd and the lower country, as the sculptures and ancient authors inform us; and at a particular period of the year, on the ninth day of the first month (Thoth),[3] every person was obliged, by a religious ordinance, to eat a fried fish before the door of his house, with the exception of the priests, who were contented to burn it on that occasion.[4]

Some fish[5] were particularly prized for the table, and pre-

is there, terrors blind him.' And then one reading is, 'The father makes the net come out of the waters; his destiny is in the hands of God.' (Maspero, 'Le Genre épistolaire chez les anciens Égyptiens,' 1872, p. 48.)

[1] Salt or prepared fish were called *utas*, and are often mentioned.

[2] Conf. Herod. ii. 92; Diod. i. 36. Perhaps the τάριχη Αἰγύπτια of Julius Pollux, Onom. vi. 9.

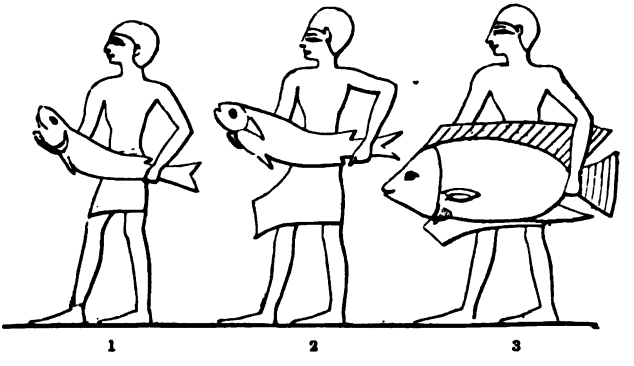
[3] The first of Thoth corresponded with the 29th of August.

[4] Plut. de Isid. s. 7.

[5] The different names of fish have already been mentioned. The ordinary word

ferred as being more wholesome, as well as superior in flavour to others; among which we may mention the *búlti*,[1] the *gisher*,[2] the *benni*,[3] the *shall* or *sheelàn*,[4] the *shilbeh*[5] and *arábrab*, the *byad*,[6] the *garmoot*,[7] and a few others; but it was unlawful to touch those which were sacred, as the oxyrhynchus, the phagrus, and the lepidotus: and the inhabitants of the city of Oxyrhynchus objected even to eat any fish caught by a hook, lest it should have been defiled by the blood of one they held so sacred.[8]

The oxyrhynchus, I have elsewhere observed,[9] was probably the *mizdeh*, the mormyrus, remarkable among the fish of the Nile



No. 374. Another mode of carrying large fish. *Tomb near the Pyramids.*

for its pointed nose,[10] as the word *oxyrhynchus* implies; and the resemblance of the Coptic name of that city, which was called Mge, to that of the fish, strongly favours that opinion.

The phagrus was the eel, and the reason of its sanctity, like that of the former, was probably owing to its unwholesome qualities; the most effectual method of forbidding its use being to assign it a place among the sacred animals of the country.

The lepidotus is still uncertain; its name proves it to have been a scaly fish, but the various conjectures of naturalists have led to nothing satisfactory respecting it. Linnæus believed it to be a carp, the *Cyprinus rubescens niloticus*; Sicard preferred

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for fish in Egyptian was *remi*; another word, *but*, evidently meant a kind of fish, and was applied to whatever was abominable or detestable.—S. B.

[1] Or *booltee*, *Labrus niloticus*.
[2] *Perca nilotica*.
[3] *Cyprinus benni*.
[4] *Silurus shall*.
[5] The *Silurus schilbe niloticus*.
[6] *Silurus bajad*.
[7] *Silurus carmuth*.
[8] Plut. de Isid. s. 7. [A prejudice still prevents this fish being eaten by many of the inhabitants of Upper Egypt.—G. W.]
[9] 'Egypt and Thebes,' p. 336.
[10] Woodcut No. 100.

the *benni*, and others the *búlti*, or the *gisher*: but if I may be pardoned for venturing a conjecture, there appears to be more reason to suppose it the *kelb el bahr*,[1] called the dog-fish of the Nile; which, though a wholesome fish,[2] might, from its appearance, create a prejudice in the minds of a superstitious people, sufficient to forbid its introduction at table, and obtain for it a place among their sacred fish: nor do I know of an instance of its introduction in the Egyptian sculptures.

Like the sacred quadrupeds, they were not all regarded with the same reverence in different parts of the country;[3] Plutarch even states that these three fish were generally held in aversion by the Egyptians;[4] and the people of Cynopolis, according to the same author,[5] were in the habit of eating the oxyrhynchus, which, he adds, 'was the origin of a civil war between the two cities, till both cities, after doing each other great mischief, were severely punished by the Romans.'

Of all fish the *búlti*[6] was evidently preferred, and not, indeed, without reason, being still considered inferior to none produced in the Nile. Many others, not readily ascertained from the mode of representing them, occur in the sculptures of Upper and Lower Egypt, and we even find the eel and the *mizdeh* introduced among those at Beni-Hassan and other places; but the difficulty which this at first sight appears to present is readily explained by the observation I have already made, of their having been held sacred in some, and not in other cities or districts of Egypt. Plato[7] mentions the taming of fish in the Nile and the royal lakes; but it does not appear whether he alluded to those which were sacred.

The favourite mode of fishing, among those who took a pleasure in it and prided themselves on their skill, was with the bident spear. They sometimes stood on the bank of a canal, but generally used a punt, or boat made of papyrus,[8] in which

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[1] *Salmo dentex*, which has very large scales.

[2] The fish in Egypt are considered better after October than in the summer months: they think that fish with scales are the only kind wholesome even in winter.

[3] Another fish, the latus, was worshipped at Latopolis in the Thebaïd.

[4] Plut. de Isid. s. 18.

[5] Ibid. s. 72.

[6] It is represented in woodcuts No. 365, *fig.* 8; No. 370, *figs.* 1 and 5; No. 373, *e* and *g*, &c.

[7] Polit. 532.

[8] The name of papyrus, or byblus, was applied to more than one plant of the genus *Cyperus*, as I shall have occasion to show. There were several names for the papyrus: as *t'ama*, for the book, roll, or manufactured article; and *pa apu*, 'the papyrus,' from which the word was derived.—S. B.

they glided smoothly over the lakes and canals within their own grounds, without disturbing the fish as they lay beneath the broad leaves of the lotus plant. The custom of angling for amusement, and spearing with the bident, may be considered peculiar to the higher orders; and while the poorer classes employed the net and hook, as already stated, the use of the spear was confined to the sportsman.

The bident was a spear with two barbed points, which was either thrust at the fish with one or both hands as they passed by, or was darted to a short distance, a long line fastened to it preventing its being lost, and serving to secure the fish when struck. It was occasionally furnished with feathers at the upper extremity, like an arrow, to assist in its distant flight, and sometimes a common spear was used for the purpose; but in most cases it was provided with a line, whose end was held by the left hand, or wound upon a reel. The same mode of fishing is still adopted by many people who live on the sea-coasts; and the fish-spears of the South Sea islanders have two, three, and four points, and are used nearly in the same manner, and with the same dexterity, as the bident by the ancient Egyptians.

On these occasions they were usually accompanied by a friend, or some of their children, and by one or two attendants, who assisted in securing the fish, and who, taking them off the barbed point of the spear, passed the stalk of a rush through the gills, and thus attached them together, in order more conveniently to carry them home.[1]

I have frequently had occasion to mention boats made of the byblus or papyrus. It is evident that this plant, from its great value and from its exclusive cultivation in certain districts, where it was a Government monopoly, could not have been applied to the many purposes mentioned in ancient authors; we may therefore conclude that several plants of the genus *Cyperus* were comprehended under the head of byblus or papyrus. This is not only in accordance with probability, from their general resemblance, but is expressly stated by Strabo,[2] who says, that 'much grows in the lower part of the Delta, where one kind is of an inferior, the other of a superior quality, and this last is known by the distinctive appellation of Hieratic Byblus. That the profits arising from its sale may be increased, they have adopted the same plan which was devised in Judæa regarding

[1] Woodcut No. 365, *fig.* 13.

[2] Strabo, lib. vii. p. 550, ed. Cas.

the date-tree and balsam, permitting it to grow only in certain places; so that its rarity increasing its value, they benefit themselves at the expense of the community.' And that under the name 'papyrus' he includes other kinds of Cyperus produced spontaneously in the marshy lands, is evident from his observing that 'the papyrus does not grow in great quantity about Alexandria, because it is *not cultivated* there;' and Pliny,[1] and other writers, show that the plant to which they frequently applied this name was wild in many parts of Egypt.

There is therefore reason to believe that several species were comprehended under the general appellation of byblus or papyrus. The *Cyperus dives*, which grows to the height of five or six feet, is still cultivated in Egypt for many of the purposes to which the papyrus plant is said to have been applied; and I have no doubt that this was the species commonly employed in former times for making mats, baskets, parts of sandals, papyrus boats, and for other ordinary uses; the *Cyperus papyrus*, or *Papyrus* (*byblus*) *hieraticus* of Strabo, being confined to the manufacture of paper.

The great abundance of fish[2] produced in the Nile was an invaluable provision of nature in a country which had neither extensive pasture lands nor large herds of cattle, and where corn was the principal production. When the Nile inundated the country, and filled the lakes and canals with its overflowing waters, these precious gifts were extended to the most remote villages in the interior of the Valley, and the plentiful supply of fish they then obtained was an additional benefit conferred upon them at this season of the year. The quantity is said[3] to have been immense, as indeed it is at the present day;[4] and the shoals of small fish, which then appear in the canals and ponds, call to mind and confirm a remark of Herodotus respecting their numbers at the rising of the Nile. His explanation of the cause of their apparently sudden production is inadmissible and unnecessary, as the ponds were always filled by artificial or natural ducts; and the same species of young fry which are found

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[1] Plin. xiii. 11. According to one reading Pliny says, 'All the paper is grown in the Sebennytic nome;' but another gives, 'nothing but paper is grown' there, which, however erroneous, is evidently the sense required—'non nisi charta' for 'omnis charta'—as he afterwards mentions its being found in other parts of Egypt.

[2] Strabo, xvii. p. 566. Diod. i. 36, 43, and 52.

[3] Herodot. ii. 93. Strabo, *loc. cit.* Ælian (Hist. Anim. x. 43) calls it the 'fish harvest,' ἀμητὸς ἰχθύων.—G. W.]

[4] Michaud says that the lake Menzaleh now yields an annual revenue of 800 purses (5600*l.*). ('Corresp. de l'Orient,' tom. vi. let. 156.)

there appear at the same time in the river; nor are they of any particular kind,[1] but the young of the various fish inhabiting the Nile.[2]

Herodotus mentions a large sum annually produced by the fisheries of the lake Mœris. 'During six months,' says the historian,[3] 'the water of the river flows into it, and during the remaining half of the year it returns from the lake into the Nile. At this time, while the water is retiring, the profits derived from the fisheries, and paid daily into the royal treasury, amount to a talent of silver,[4] or about 193*l.* 15*s.* English;[5] and during the other six months, when the water flows from the Nile into the lake, they do not exceed twenty minæ'[6] (about 64*l.* 12*s.*). Diodorus says, that when Mœris, from whom the lake derived its name, and who was supposed to have made the canal, had arranged the sluices for the introduction of the water, and established everything connected with it, he assigned the sum annually derived from this source as a dowry to the queen, for the purchase of jewels, ointments, and other objects connected with the toilet. The provision was certainly very liberal, being a talent every day, or upwards of 70,700*l.* a year;[7] and when this formed only a portion of the pin-money of the Egyptian queens, to whom the revenues of the city of Anthylla, famous for its wines, were given for their dress,[8] it is certain they had no reason to complain of the allowance they enjoyed.

I have frequently had occasion[9] to notice the error of Herodotus in confounding the lake Mœris with the canal, and have proved from Pliny,[10] that the name was also applied to the canal which conducted the water from the Nile to what is now called the Birket el Qorn; and in order to show the impossibility of the return of the waters from the lake itself to the higher level of the Nile, and that Herodotus did not judge from his own

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[1] De Sacy's Abd-al-latif, note 141, in lib. i. c. 4.

[2] I have caught a small net full of them, and on examination found them to be of the *Silurus shall* and other common species; and no one who has eaten them at table can have failed to observe that they are of different kinds, from the greater or less quantity of bones they contain.

[3] Herodot. ii. 49.

[4] Reckoning the talent at sixty minæ.

[5] Some compute it to be 225*l.*

[6] The mina was 3*l.* 4*s.* 7*d.*

[7] Diodor. i. 52. From all the fisheries of Egypt would have been less improbable. The lake Mœris is now farmed for thirty purses (210*l.*) annually. Of ninety piastres from the sale of the fish, ten are paid for the boat, forty to the fishermen, and forty to the farmers of the fish. There are only now six boats on the lake.

[8] Herodotus (ii. 98) says, 'for their sandals;' Athenæus (Deipn. i. 25), 'for their dress;' a privilege continued to the queens of Persia, after Egypt was conquered by Cambyses.

[9] 'Egypt and Thebes,' p. 354.

[10] Plin. xxxvi. 12.

observation, but mistook the facts detailed to him by his Egyptian informants, who had in view the canal alone, when speaking of the return of the water to the river, I shall repeat what I before remarked on this subject.[1]

'Herodotus's account of the water returning from the lake to the Nile, on the subsiding of the inundation, is totally inapplicable to the lake Mœris, the level of its surface being about 100 or 120 feet lower than the bank of the Nile at Benisooef; which, making every allowance for the rise of the bed of the river, and the proportionate elevation of its banks, could never have been on a level, even in Herodotus's time, with the lake Mœris; and consequently no return of the water could have taken place from the lake to the Nile. From the canal, however, it could, as at the present day; and the fish caught at the mouth of this and other canals, at that season, still afford a considerable revenue to the Government, and are farmed by certain villages on the banks. That the level of the lake Mœris must be now about the same as formerly, is evident from our finding ruins of baths on its borders; and the accidental and temporary rise of its waters, which happened some years since, was merely owing to the bursting of the great dyke at Tomëéh. As to the Bathen of the great geographer D'Anville, it is quite Utopian.'

The quantity of fish now caught in the lake Mœris itself, or Birket el Qorn, is very great, and supplies the markets of the Fyoom with abundance and variety of the finest kind—superior, certainly, in flavour to those of the Nile, though of the same species; but it is probable that the saline quality of the water may effect the slight change observable in the lake fish. I do not believe it offers any species, or even varieties, differing from those of the Nile, from whence, doubtless, it derived its original stock; and the twenty-two kinds it produced, according to the information of Diodorus,[2] do not appear to have been at any time considered different from those of the parent stream.

Like that of the canals, the lake fishing is farmed by the Government to some rich inhabitants of the district,[3] who are usually Copt Christians; and the fish, as in former times, are either taken fresh to the market, or are dried and salted, as Diodorus observes in his notice of the lake; though the number

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[1] 'Egypt and Thebes,' p. 358.

[2] Diod. i. 52. Strabo, lib. xvii. p. 566, on the Nile fish.

[3] The small village of Agalteh, at Thebes, pays annually 1500 piastres, about 21*l.*, to Government for the fish of its canal.

of persons[1] engaged in this occupation bears a very small proportion to that of former times.

This custom of farming the fisheries was probably derived by the Arab government from their predecessors; it does not, however, seem to have been adopted by them at their first occupation of the country, but was introduced subsequently, since the Arab historian El Makrisi mentions it as a new idea. The method employed was doubtless similar to that of ancient times, which continues to the present day; and the passage is so curious, that I shall introduce it from the translation given by the learned M. Silvestre de Sacy.[2]

'Quant à la pêche, c'est-à-dire, aux alimens que Dieu procure aux hommes par la pêche du fleuve, le premier administrateur qui en a fait un objet de revenu pour le fisc, c'est encore Ebn-Modabbir: il établit un bureau exprès pour cela; mais ne voulant pas donner à ce bureau la dénomination de bureau des pêches, qui lui paroissoit ignoble, il le nomma le bureau pour la plantation des pieux, et l'établissement des filets. Cette nouvelle invention fiscale se soutint. On députoit pour la recette de ce droit un inspecteur, des notaires, et un *cateb*, en divers cantons de l'Égypte, tels que le canal d'Alexandrie, le lac d'Alexandrie, celui de Nestarawa, Damiette, les cataractes d'Oswan, et plusieurs autres étangs et lacs. Ces commissaires partoient pour leur mission, au moment où le Nil commençoit à décroître, et les eaux à se retirer de-dessus les terres qu'elles avoient couvertes, pour rentrer dans le lit du fleuve. Antérieurement à cela, on avoit fermé les ouvertures pratiquées dans les chaussées, et les arches des ponts, au moment où le Nil avoit cessé de croître, afin d'empêcher les eaux de se retirer vers le fleuve, et de les forcer à s'accumuler du côté voisin des terres. Alors on plaçoit des filets, et on laissoit l'eau prendre son cours; le poisson, entraîné par le courant de l'eau, arrivoit aux filets, qui l'empêchoient d'aller plus loin, et de redescendre avec l'eau; il s'amassoit donc dans les filets. On le tiroit ensuite à terre, on le déposoit sur des tapis, on le saloit, et on le mettoit dans des vases; et, lorsqu'il étoit suffisamment fait, on le vendoit sous le nom de *salaisons* et de *sir*. On ne préparoit ainsi que le poisson qui étoit de la taille du doigt et au-dessous.

[1] Diod. *loc. cit.*: 'They say that twenty-two kinds of fish are found in it (the lake Mœris), and so large a number is caught, that the numerous salters who are constantly employed there, can with difficulty get through the work imposed upon them.'

[2] In his 'Rélation de l'Égypte' of Abd-allatif, p. 283, note.

Cette même espèce, quand elle est fraîche, se nomme *abearia;* on la mange rôtie et frite.'

The great consumption of fish in ancient Egypt is not only attested by Herodotus and other writers, but by the sculptures of the upper and lower country; and the Bible makes allusion to the 'fishers'[1] of the Nile, 'the sluices and ponds'[2] where they were preserved, and the regret with which the Israelites remembered the fish they ate so 'freely' in Egypt.[3]

The chase of the hippopotamus[4] was a favourite amusement of the sportsman in those parts of the upper country where it was found. It was probably always rare in Lower Egypt,[5] though Pliny[6] says it abounded in the Saïte nome: but in Upper Ethiopia this amphibious animal was common in the Nile, as at the present day.[7] Though not so hostile to man as the voracious crocodile, it was looked upon as an enemy which they willingly destroyed, since the ravages it committed at night in the fields occasioned heavy losses to the farmer;[8] and an additional inducement to kill it was the value attached to its hide, of which they made shields, whips,[9] javelins,[10] and helmets.[11] To the two former purposes it is still applied; and, as Pliny observes, it retains its hardness perfectly, if preserved from moisture.

The whips are known by the name of *corbág* (corbaj), and are in very general use in Egypt and Ethiopia for riding the dromedary, or for chastising a delinquent peasant; and it is probable that it was also applied to the latter purpose by the ancient Egyptians, since we find an attendant following the steward of an estate, with this implement of punishment in his hand.[12]

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[1] Isaiah xix. 8. [2] Isaiah xix. 10.

[3] Numb. xi. 5: 'We remember the fish which we did eat in Egypt freely.'

[4] In Arabia it has the same name, *Faras el bahr*, 'river horse' (mare); and in the language of Ethiopia, *Yasimt*.

[5] It is not met with in Upper Egypt, or, indeed, on this side the Second Cataract, at the present day.

[6] Pliny, xxviii. 8.

[7] The hippopotamus appears at so early a period—the 4th and 5th Dynasty, in the tombs of Sakkarah and Gizeh—that it is difficult to believe that at that remote period it did not descend to the mouths of the Nile, and was chased in the neighbouring Nile. The name of the animal was *khebem*, or *bechem*, and the female was called *teb;* and a lady on a Memphian tomb of the 4th Dynasty is called *Teb-t*, the female hippopotamus.—S. B.

[8] Pliny and Diodorus are correct in saying 'it feeds on the corn-fields:' but the modern hippopotamus has not retained the dexterity or the cunning of his ancestors, in walking backwards to deceive his pursuers, mentioned in Plin. viii. 25. In the correspondence of Ameneman in the 1st Sallier papyrus, the miseries of agriculture are described. Amongst them it is mentioned that 'the caterpillar devours the herb-garden, the beasts devour the other things;' here the word for beast, *tebt*, is equally applicable to the hippopotamus. (Goodwin's 'Cambridge Essays,' 1858, p. 250.)—S. B.

[9] Plin. viii. 25: 'Tergoris ad scuta galeasque impenetrabilis.'

[10] Herod. ii. 71. [11] Diod. i. 35.

[12] Woodcut No. 375.

The mode of attacking and securing the hippopotamus appears, from the sculptures of Thebes, to have been very similar to that now adopted about Sennaar; where, like the ancient Egyptians, they prefer chasing it in the river to an open attack on shore: and the modern Ethiopians are contented to frighten it from the corn-fields by the sound of drums and other noisy instruments.

Attendant carrying a whip or *corbág*
No. 375. *Thebes.*

I have already had occasion[1] to explain the method of taking this animal: it was entangled by a running noose, at the extremity of a long line wound upon a reel, at the same time that it was struck by the spear of the chasseur. 'This weapon consisted of a broad flat blade, furnished with a deep tooth or barb at the side, having a strong rope of considerable length attached to its upper end, and running over the notched summit of a wooden shaft, which was inserted into the head or blade, like a common javelin. It was thrown in the same manner, but on striking, the shaft fell, and the iron head alone remained in the body of the animal, which, on receiving a wound, plunged into deep water, the rope having been immediately let out. When fatigued by exertion, the hippopotamus was dragged to the boat, from which it again plunged, and the same was repeated till it became perfectly exhausted; frequently receiving additional wounds, and being entangled by other nooses, which the attendants held in readiness, as it was brought within their reach.'

Several representations of this subject have been found at Thebes, but the destructive thoughtlessness of the peasants, or the appropriating inclinations of travellers, have unfortunately destroyed them, and few vestiges now remain beyond the figure of the man, his spear, and a few minor details. I should, therefore, have been unable to introduce a copy of this interesting subject, had not the kindness of Mr. Humphreys, who was fortunate enough to obtain a sketch of one of them, furnished me with it for the accompanying woodcut.[2]

The chasseur[3] is here in the act of throwing the spear at the

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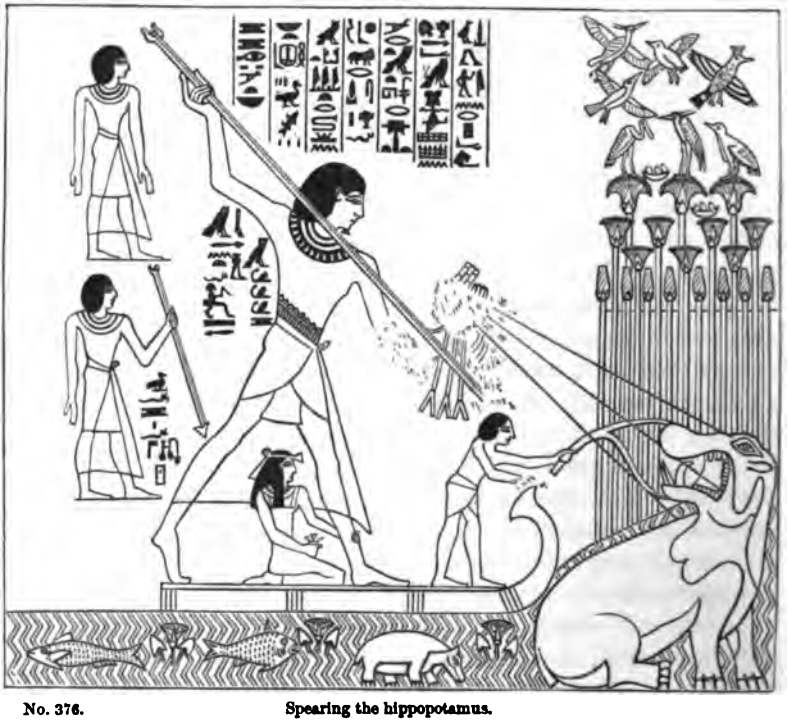
[1] 'Egypt and Thebes,' p. 226.

[2] Woodcut No. 376.

[3] The principal hunter is named Antef, a prevalent family name at the time of the

hippopotamus, which he has already wounded with three other blades, indicated by the ropes he holds in his left hand; and having pulled the animal towards the surface of the water, an attendant endeavours to throw a noose over its head, as he strikes it for the fourth time. Behind him is his son, holding a fresh spear in readiness: and in order that there should be no question



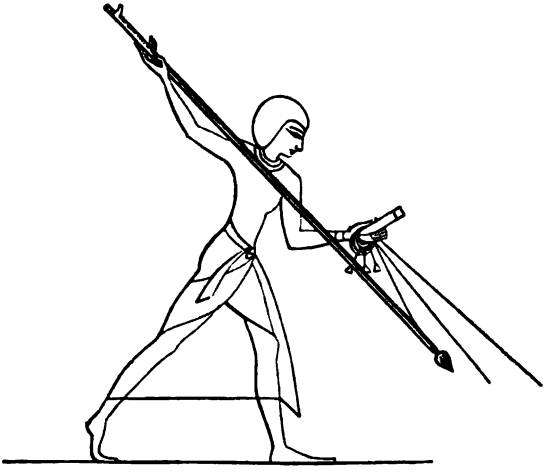
No. 376. Spearing the hippopotamus.

about the ropes belonging to the blades, the fourth is seen to extend from his hand to the shaft of the spear he is throwing. The upupa, heron, and other birds are frightened from the rushes as the boat approaches; and the fish, with a young hippopotamus, seen at the bottom of the water, are intended to show the communication of the fenny lake with the Nile.

The mode of attacking the hippopotamus is thus described

11th Dynasty, to which period the tomb must be assigned; he is called *nem aa*, 'great repeater,' and the hereditary lord or duke and great ruler or governor in his nome or district, and 'is going to spear the hippopotamus, delighting in the fields and in all the pursuits of fowling and fishing.' The son who holds the javelins is a royal scribe.—S. B.

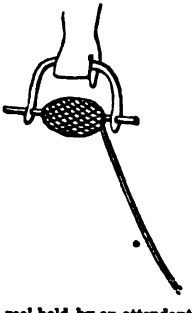
by Diodorus:[1] 'It is chased,' says the historian, 'by many persons, each armed with iron javelins. As soon as it makes its appearance at the surface of the water, they surround it with boats, and closing in on all sides they wound it with blades, furnished with iron barbs, and having hempen ropes fastened to



No. 377. Spear used in the chase of the hippopotamus. *Thebes.*

them, in order that when wounded it may be let out, until its strength fails it from loss of blood.'

The spear they used on these occasions was evidently of a different construction from that intended for ordinary purposes, and was furnished, as Diodorus observes, with a rope for letting out the wounded animal, in the same manner as practised by the modern Ethiopians: there was sometimes another line fastened to the shaft, and passing over a notch at its upper end; which was probably intended to give the weapon a greater impetus, as well as to retain the shaft when it left the blade. The rope attached to the blade was wound upon a reel, generally carried by some of the attendants. It was of very simple construction, consisting of a half ring of metal, by which it was held, and a bar turning in it, on which the line or string was wound.



A reel held by an attendant.
No. 378. *Beni-Hassan.*

[1] Diod. i. 35.

Besides the fish cured, or sent to market for the table, a very great quantity was set apart expressly for feeding the sacred animals and birds,—as the cats, crocodiles, ibises, and others; and it is probable that some of the large reservoirs attached to the temples were used as well for preserves or *piscinæ*, where the fish were kept, as to afford a supply of water for the necessary ablutions of the devout, and for various purposes connected with religion.

With regard to the number of fish in the river of Egypt, and the many species said to have been known there, it may be conjectured that some formerly common to the lower parts of the Nile are no longer met with to the north of the First and Second Cataracts; or varieties of the same species may have been enumerated in the twenty-two mentioned by Diodorus: and we even find that the Ethiopians sometimes brought fish, perhaps of a rare kind unknown in Egypt, as part of their tribute to the Egyptians.[1]

That some animals, both aquatic and terrestrial, as well as several botanical productions, once common in Egypt, are now confined to the latitudes of Ethiopia, is well known: the crocodile, formerly an inhabitant of Lower Egypt and the Delta,[2] now limits the extent of its visits northward to the districts about Manfaloot; and the hippopotamus is no longer seen in Lower Ethiopia. And if one was known, some years ago, to wander downwards into Nubia, below the Second Cataract, and another even as far as Damietta, these were accidental occurrences, which occasioned as much astonishment to the people who witnessed their unexpected visit, as to the bewildered animals themselves.

As usual on such occasions, their unintentional intrusion, where they could not be objects of terror, was punished with a readiness which the same persons would not have displayed in places where they are really obnoxious; and every Turk or peasant who could procure a weapon was fired with the proud desire of destroying the intruder, and showed the same *chivalrous* feeling usually called forth against an imprudent porpoise, who has ventured to pass the bridges of the English capital.

But the hippopotamus once lived in Lower Egypt, and the

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[1] The fish brought from Mesopotamia and elsewhere have been already mentioned.—S. B.

[2] Seneca (Nat. Quæst. iv. 2) says, 'At the Heracleotic mouth of the Nile, which is the largest, a battle occurred between the dolphins of the sea and the crocodiles of the river, the former being victorious!' [This is also noticed by Strabo, xvii. p. 567, and Pliny, viii. 26.—G. W.]

city of Papremis, in the Delta, worshipped it as a sacred animal worthy of the Egyptian Mars.

Neither the hippopotamus nor the crocodile appears to have been eaten by the ancient Egyptians.[1] Pliny indeed mentions the medicinal properties of both of them;[2] and Plutarch affirms that the people of Apollinopolis used to eat the crocodile:[3] this, however, was not a general custom, but merely upon a certain occasion connected with religious superstition, and intended to show their abhorrence of Typhon the evil genius, of whom it was an emblem. 'They have likewise,' he continues, 'a solemn hunt of this animal upon a particular day, set apart for the purpose, at which time they kill as many of them as they can, and afterwards throw their dead bodies before the temple of their god, assigning this reason for their practice, that it was in the shape of a crocodile Typhon eluded the pursuit of Orus.'[4]

This is one of the many instances of the different feelings with which the sacred animals were regarded in various parts of Egypt: and as Herodotus[5] observes, 'Some of the Egyptians consider the crocodile sacred, while others make war upon it; and those who live about Thebes and the lake Mœris (in the Arsinoïte nome) hold it in great veneration.'

In some places it was treated with the most marked respect, and kept at considerable expense; it was fed and attended with the most scrupulous care; geese, fish, and various meats were dressed purposely for it; they ornamented its head with earrings, and its feet with bracelets and necklaces of gold or artificial stones;[6] it was rendered perfectly tame by kind treatment; and after death the body was embalmed in a most sumptuous manner. This was particularly the case in the Theban, Ombite, and Arsinoïte nomes; and at a place now called Maabdeh, opposite the modern town of Manfaloot, are extensive grottoes, cut far into the limestone mountain, where numerous crocodile mummies have been found, perfectly preserved, and evidently embalmed with great care.

The people of Apollinopolis, Tentyris, Heracleopolis, and other places, on the contrary, held this animal in abhorrence, and lost no opportunity of destroying it; and the Tentyrites were so

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[1] Some modern travellers have eaten occasionally steaks cut from the crocodile, the flesh of which is musky and disagreeable; that of the hippopotamus is more palatable.—S. B.

[2] Plin. xviii. 8.

[3] Plut. de Isid. s. 50.

[4] The crocodile was called by the Egyptians *emsuh*, 'out of an egg,' and many other special names according to its kind or qualities.—S. B.

[5] Herod. ii. 69.

[6] Ibid.

expert, from long habit, in catching, and even in engaging this powerful animal in its native element, that they were known to follow it into the Nile, and bring it by force to the shore. Pliny and other ancient authors mention the wonderful feats performed by them not only in their own country, but in the presence of the Roman people: and Strabo[1] says that on the occasion of some crocodiles being exhibited at Rome, the Tentyrites, who had followed them, fully confirmed the truth of the report of their power over those animals; for, having put them into a spacious tank of water, with a shelving bank artificially constructed at one side, the men boldly entered the water, and entangling them in a net dragged them to the bank, and back again into the water, in the presence of numerous spectators.

Pliny observes that, 'though the Tentyrites are small men, they have the greatest presence of mind in their encounters with the crocodile, which is an animal most dangerous to those who fear it, but timid when pursued. They even dare to follow it singly, and swimming after it in the river spring upon its back, and thrust a bar into its open mouth, which, being held at the two extremities, serves as a bit and enables them to force it to the shore.' Pliny even goes so far as to state that, frightening them with the voice alone, they compelled them to render the bodies they had devoured to the (disappointed) embalmers;[2] but as crocodiles show themselves much greater epicures in their mode of eating, and tear their food to pieces before they swallow it, we may take the liberty of suggesting the probability that, in these cases, the animal *abandoned the body* on their approach: its usual habit being to bring it to the shore, and there to tear it up, the clothes having been stripped off while in the water.

Seneca[3] accounts for the power possessed by the Tentyrites over the crocodile from their intrepidity, and in accordance with Pliny and with modern experience, he states it to be 'timid before the bold, and most ready to attack those who fear it: the Tentyrites excelling neither in their nature nor constitution, but in their fearless contempt of it; for they follow, and by means of a snare, stop it in its flight; nor are any killed except those who are wanting in presence of mind.'

'The crocodile is in fact,' as I have elsewhere remarked,[4] 'a timid animal, flying on the approach of man, and, generally

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[1] Strabo, xvii. p. 560, ed. Cas.
[2] Plin. viii. 25.
[3] Seneca, Nat. Quæst. iv. 2.
[4] 'Egypt and Thebes,' p. 409.

speaking, only venturing to attack its prey on a sudden; for which reason we seldom or never hear of persons devoured by it, unless incautiously standing at the brink of the river, where its approach is concealed by the water; and where, by the immense power of its tail, it is enabled to throw down and overcome the strongest man, who, being carried instantaneously to the bottom of the river, has neither the time nor the means to resist.

'Pliny, like other authors,[1] has been led into a common error, that the sight of the crocodile is defective under water, which a moment's consideration, without the necessity of *personal* experience, should have corrected; for it is at least reasonable to suppose that an animal living chiefly on fish, should, in order to secure its prey, be gifted with an equal power of sight; and that of fish cannot be considered defective: but Herodotus, the *father* of history and of errors, affirms[2] that it is totally "blind under water."

'Egypt produces two varieties of this animal,[3] distinguished by the number and position of the scales on the neck. One has the front row composed of six scales, behind which is a cluster of four large central scales in two lines, with two smaller ones on each side of the uppermost of these lines; the other has in the front row four only, and the disposition of the other eight is thus: four central scales in two lines, with one smaller one on each side of the upper line, and two behind the second and lower line. The first row of the body consists of six scales, the former variety having only four. The other scales of the body are nearly alike in both. They do not exceed eighteen or nineteen feet, though travellers have mentioned some of stupendous size.'

Herodotus enters into a detail of the habits of the crocodile, and relates the frequently repeated story of the *trochilus* entering the animal's mouth during its sleep on the banks of the Nile, and relieving it of the leeches whic hadhere to its throat.[4] The truth of this assertion is seriously impugned, when we recollect that leeches do not abound in the Nile; and the polite understanding said to subsist between the crocodile and the bird becomes more improbable, when we examine the manner in which the throat of the animal is formed: for having no tongue, nature has given it the means of closing it entirely, except when in the

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[1] Aristot. Hist. An. ii. 10: 'They see imperfectly in the water.'

[2] Herod. ii. 68.

[3] 'Egypt and Thebes,' p. 225, note. Conf. Plin. xxviii. 8.

[4] Herod. ii. 68. Plin. viii. 25.

act of swallowing; and during sleep the throat is constantly shut, though the mouth is open.

The hostile intrusion of the ichneumon, related by other writers,[1] is equally destitute of probability.

That birds living on flies frequently flit about the crocodile, while lying on the sand, we can readily believe: and this circumstance, as well as the presence of a small *running* bird, a species of *charadrius*,[2] which is often seen on the same bank, and which, loudly chirping on the approach of man, may be supposed to warn the crocodile of danger, very possibly led to the fable of those visits of the *trochilus*,[3] and the friendly services it rendered the sleeping crocodile.

Its eggs, as Herodotus and Pliny observe, are small, considering the size which it afterwards attains, being the size of a large hen's egg, but longer in proportion to its width, and are deposited by the female in the sand, or in the light loose earth of the river side; and its constant desire to enjoy the fresh air, during the summer, is shown by its lying for a length of time asleep on the sandbanks, with its open mouth turned to the prevailing wind.

'They had many different modes of catching it,' says Herodotus;[4] 'that most worthy of notice is as follows: They fasten a piece of pork to a hook, and throw it into the middle of the stream, as a bait; then, standing near the water's edge, they beat a young pig, and the crocodile, being enticed to the spot by its cries, finds the bait on its way, and swallowing it is caught by the hook. They then pull it ashore, and the first step is to cover its eyes with mud, and thus being deprived of sight it is unable to offer an effectual resistance.' We also find from the sculptures that they attacked the crocodile with a spear, transfixing it as it passed beneath the boat in shallow water. In Ethiopia, at the present day, the crocodile is caught by tying a dog as bait on a log of wood, round the centre of which a rope is fastened. As soon as the crocodile has swallowed the dog, the cord being pulled, the wood turns across in his throat, and he is then pulled on shore.

The hatred borne by some of the Egyptians against the crocodile frequently gave rise to serious disputes, and the inhabitants of Tentyris, who had killed and eaten the sacred animal

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[1] Plin. viii. 25.
[2] Called *sicsac* in Arabic.
[3] The name *trochilus* signifies 'roller.'
[4] Herod. ii. 70.

of Ombos, were attacked with all the fury of religious feud. On one occasion, after many had been wounded on both sides, and the Tentyrites were worsted and compelled to fly, the Ombites secured a prisoner of the opposing party, and, if we may believe Juvenal,[1] satiated their revenge by eating his body. The statement, however, is questionable, nor is it probable even in that depraved age, when Egypt had passed under the dominion of the Romans, that such a scene actually occurred; and great licence is always allowed to poets, and still more is taken by the severity of satire.

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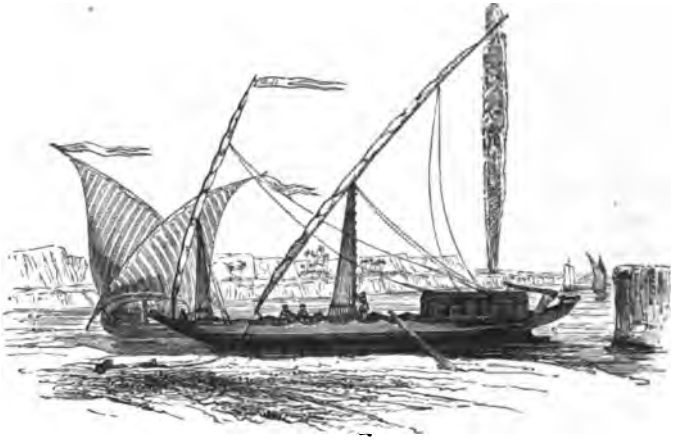
[1] Juv. Sat. xv. 33, 80.

Sacred tamarisk of Osiris. In the branches, the *Bennu* or Phœnix. 'The Soul of Osiris.'

No. 379. *How.*



VIGNETTE H.—Modern boats of the Nile. On the opposite bank is a whirlwind of sand.

CHAPTER IX.

Arts and Manufactures—Glass—Linen—Dyeing—Rope-making—The Papyrus—Leather-cutters—Potters—Cabinet-makers and Carpenters—Makers of Chariots and Coffins—Coopers—Boats and War Galleys—Tin and other Metals—Gold Mines—Gold Working and Gilding.

OF the progress of the ancient Egyptians in many useful branches of art, we have unquestionable proofs in the monuments that remain, and from the evidence of ancient writers. The sculptures inform us that many inventions were known to them at the early periods when most other nations were still in their infancy, which, though generally ascribed to a much later epoch, are, from the facility we now have of fixing the chronology of Egyptian monuments, ascertained to be coeval with the Exodus, or the bondage of the Israelites.

The scientific skill they possessed in architecture is always a matter of surprise to the traveller who beholds the stupendous monuments of Egypt; whose solid masonry would have defied the ravages of time, and have remained unimpaired to the present day, had not the destructive hand of man been employed against them. The invasion of Cambyses, and the subsequent wars with the Persians; the three years' siege of Thebes, by Ptolemy Lathyrus, which laid several of her buildings in ruins, and so completely reduced that ancient capital, that it was no longer worthy to be considered an Egyptian city; the inveteracy of the Christians against their Pagan predecessors, and the abhorrence

of the Moslems for the monuments of the idolatrous infidels; and lastly, the position of the temples, which presented themselves to the mason as a convenient quarry, supplying, at little labour and expense, abundance of stones for the erection of new edifices, were the baneful causes of the downfall of Egyptian monuments: but though great portions of the finest buildings were destroyed, sufficient remains to attest their former grandeur, and to proclaim the wonderful skill and mechanical knowledge of their founders.

At the period of the Persian invasion, Egypt was looked upon as the great school of science, and the repository of all kinds of learning; but the arts had fallen from the degree of excellence to which they had attained under the Augustan age of the 18th Dynasty, and though luxury and private wealth increased, taste in sculpture and architecture had long since been on the decline, and minute and highly-finished details were substituted for the simple and dignified forms of an earlier period. The arts, however, continued to flourish under the succeeding dynasties, and in the reigns of Psammatichus and Amasis the encouragement given to architecture, sculpture, and painting seemed to promise an improvement, if not the revival, of taste, and arrested for a time their downfall; but an unexpected event was destined to bring about their sudden decadence, and the Persian conquest dealt a blow from which they vainly strove to recover in the succeeding reigns of the Macedonian dynasty: for not only were the finest monuments destroyed or mutilated, statues,[1] works of art and all the wealth[2] of the country carried off to Persia, but the artists themselves were compelled to leave their homes, to follow the conquerors to their capital, and to commemorate the victories obtained over Egypt by the authors of their own captivity and misfortunes. Thus deprived of the finest models, humbled by the lengthened occupation of the country, and losing the only persons capable of directing taste or encouraging art, Egypt, already beginning to sink, vainly endeavoured to struggle with the overwhelming current of events; and while Persia was benefited, Egyptian art received its deathblow from the invasion of Cambyses.

The Egyptians had long been renowned for mathematical

[1] Ptolemy Euergetes is said to have brought back 2500 statues, when he invaded the Persian dominions, which had been taken from Egypt by Cambyses.

[2] Conf. Diodor. i, 46, 'The silver and gold, the abundance of ivory and precious stones, carried away by the Persians;' and i. 49. This is also alluded to in the Decree of Canopus, l. 10, 11. (Lepsius, 'Das bilingue Dekret von Kanopus,' fol. Berlin, 1866, p. 19.)—S. B.

science; but it was not till the power and wealth of the country were at their zenith that full scope was given for its display in the grand style of public monuments: a fact sufficiently indicated by their increase of scale and vastness of size at that period; the buildings of olden time being generally of much smaller dimensions than those of the advanced age of the 18th Dynasty. I particularly allude to the temples and to the colossal statues erected at the latter epoch, which far exceed in their scale, and the size of the blocks themselves, the ordinary monuments of an earlier era, as may be observed in the increased proportions of the grand hall of Karnak, added by Rameses the Great, and the dimensions of the sitting colossi of Amenophis, in the plain of Thebes; or that of Rameses at the Memnonium, which weighed about 886 tons, and was brought over land from the quarries at the cataracts of Syene, a distance of more than 120 miles.

Many obelisks, each of a single block of granite, had already been hewn and transported from the same quarries, as early at least as the reign of Usertesen I., whom I suppose to have been the contemporary of Joseph; and the same mechanical skill had already existed even before that period, as is shown from the construction of those wonderful monuments the Pyramids, near Memphis, which, in the size of the blocks and their style of building, evince a degree of architectural knowledge perhaps inferior to none possessed at a subsequent epoch. But it was not generally called forth in early times; they were then contented with monuments of an inferior scale, and their ordinary buildings were not of the same gigantic dimensions. A grand work was then seldom undertaken without an adequate motive, and the knowledge they possessed was reserved for particular and extraordinary occasions; but when riches and the love of show increased, they extended the size of their temples, and constant practice having made the means familiar to them, artisans and engineers vied with each other in hewing and transporting colossal statues, monoliths, and other ponderous monuments, which served for ornament and the display of their mechanical knowledge.

It was not in this branch of science alone that the Egyptians excelled; the wonderful skill they evinced in sculpturing or engraving hard stones is still more surprising; and we wonder at the means employed for cutting hieroglyphics, frequently to the depth of more than two inches, on basalt, on syenite, and other stones of the hardest quality. Nor were they deficient in

taste—a taste, too, not acquired by imitating approved models, but claiming for itself the praise of originality, and universally allowed to have been the parent of much that was afterwards perfected, with such wonderful success, by the most highly gifted of nations, the ancient Greeks; and no one can look upon the elegant forms of many of the Egyptian vases, the ornamental designs of their architecture, or the furniture of their rooms, without conceding to them due praise on this point, and admitting that, however whimsical some of the figures may be in sacred subjects, they often showed considerable taste, where the regulations of the priesthood and religious scruples ceased to interfere.

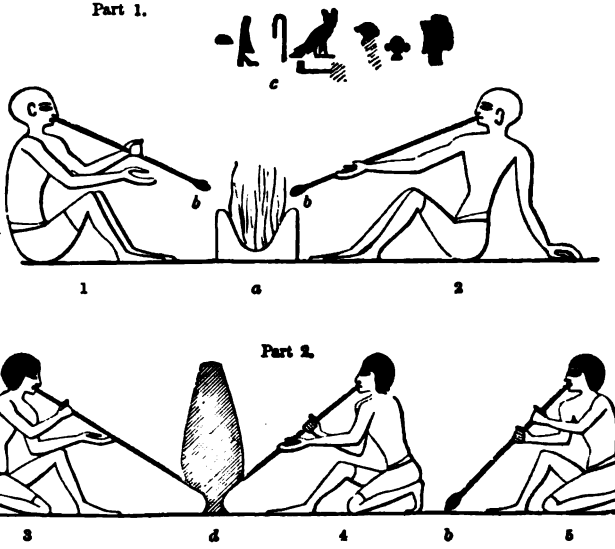
In their temples they were obliged to conform to rules established in the early infancy of art, which custom and prejudice had rendered sacred: the ancient style was always looked upon with the highest veneration, and it is probable that from the same feeling of respect the formulæ and diction of their books of law or religion continued the same as in early times; a custom prevalent among many people, whatever improvements language undergoes: for neither would the Turkish Moslem dare to translate the Arabic Qorán, nor the Cairene to alter it to his own dialect; and we might ourselves object to a Bible written in the style of Robertson or Hume.

Plato and Synesius both mention the stern regulations which forbade their artists to introduce innovations in religious subjects; and the more effectually to prevent this, 'the profession of artist was not allowed to be exercised by common or illiterate persons, lest they should attempt anything contrary to the laws established regarding the figures of the deities.'

In their household furniture, and the ornamental objects used in their dwelling-houses, they were not restricted by any established rules; here, as I have observed, much taste was displayed, and their vases frequently bear so strong a resemblance to those of Greece, that we might feel disposed to consider them borrowed from Greek models, did not their known antiquity forbid such a conclusion; and many have mistaken the ornamental devices attached to them and to other fancy works of Egyptian art, for the productions of Greek sculptors. Now that we are acquainted with the dates of Egyptian monuments, the square border and scrolls, so common on Athenian, Sicilian, Etruscan, and Græco-Italian vases, are shown to be, from the most remote time, among the ordinary devices on cups, and the ceilings of tombs, at Thebes and other places; and the graceful

curve of the Egyptian cornice, which, not confined to architecture, is repeated on vases and numerous articles of furniture, was evidently adopted, for the same ornamental purpose, by the Greeks.[1]

One of the most remarkable inventions of a remote era, and one with which the Egyptians appear to have been acquainted at least as early as the reign of the first Usertesen, upwards of 3500 years ago, is that of glass-blowing. The process is represented in the paintings of Beni-Hassan, executed during the reign of that monarch and his immediate successors; and the same is again repeated, in other parts of Egypt, in tombs of various epochs.



No. 380. Part 1. Glass-blowers. *Beni-Hassan.*
2. The same. *Thebes.*

The glass at the end of the blowpipe, *b b*, is coloured green.
a is the fire. *d*, a glass bottle.

The form of the bottle and the use of the blow-pipe are unequivocally indicated in those subjects: and the green hue of the fused material, taken from the fire at the point of the pipe, cannot fail to show the intention of the artist. But if the sceptic should feel disposed to withhold his belief on the authority of a painted representation, and deny that the use of glass could be proved on such evidence, it may be well to remind him that images of glazed pottery were common at the same period, that

[1] Vases, woodcut No. 268; and doorways, woodcuts Nos. 120, 121, and 123.

the vitrified substance with which they are covered is of the same quality as glass,[1] and that therefore the mode of fusing and the proper proportions of the ingredients for making glass were already known to them; and we can positively state that 200 years after, or about 1500 B.C., they made ornaments of glass; a bead bearing a queen's name[2] who lived at that period having been found at Thebes by my friend Captain Henvey, R.N., the specific gravity of which, 25·23, is precisely the same as of crown glass now manufactured in England.[3]

1

2

3

4

Figs. 1, 2. Glass bottles represented in the sculptures of Thebes.
3. Captain Henvey's glass bead. About the real size.
4. The hieroglyphics on the bead, containing the name of a queen who lived about 1500 B.C. No. 381.

Many glass bottles and objects of various forms have been met with in the tombs of Upper and Lower Egypt, some unquestionably of very remote antiquity, though not readily ascribed to any fixed epoch, owing to the absence of royal names indicative of their date; and glass vases, if we may trust to the representations in the Theban paintings, are frequently shown to have

[1] The glaze of course is vitreous, but the dated specimens of the period of the 12th Dynasty are chiefly, if not all, of a kind of steatite glazed.—S. B.

[2] The name is that of *Hasheps* or *Hatasu*, sister and co-regent of Thothmes II. and Thothmes III. of the 18th Dynasty. The bead has the titles of 'beloved of the goddess Ather, resident in Uas,' or Western Thebes, and some other inscription not quite intelligible.—S. B.

[3] This bead has been recently examined by Professor Maskelyne, who considers it to be a kind of obsidian. It is of a bottle-green colour. Another bead of the same kind, of a black and white colour, also resembling glass, is in the Museum at Liverpool, No. 11568M, and is supposed to be agate.—S. B.

been used for holding wine, at least as early as the Exodus, 1490 years before our era. [The earliest dated example of glass is a small fragment of dark-blue glass impressed with the prenomen of Antef III., of the 11th Dynasty. There is also a bottle for the toilet, in shape like a Greek *oinochoë*, of a turquoise-blue colour, and having ornaments and an inscription in yellow colour on the neck and body. The glass is semi-opaque, and partly ornamented with waving lines. After the 18th, many fragments of vases of the period of the 19th Dynasty, and discovered amidst the *débris* of the Sarbet el Khadim, in the neighbourhood of Mount Sinai, were found by the late Major Macdonald.—S. B.]

Bottle of light blue glass, inscribed with the name of Thothmes III., of the 18th Dynasty.
No. 382. *British Museum.*

Till within a few years, prejudice forbade the belief that the ancients were acquainted with the manufacture of glass, and many persons could not be persuaded that the Romans used it, though represented in the paintings of Pompeii with the most unquestionable truth, and a pane of glass and numerous fragments of broken bottles had been discovered in that excavated city. The fact, however, became established, and these doubts were silenced: still it was questioned whether the invention dated before the destruction of that city; the glass was much condemned as of inferior quality; and the authority of Pliny,[1] previously disbelieved, was now welcomed as an old friend, and called forth to prove that glass was a late discovery of some Phœnician mariners, who, having lighted a fire on the sea-shore, and supported their cooking utensils on blocks of nitre, were taught by the union of the fused substances the secret of this useful invention. The Roman naturalist had fixed no time for this event; and if he spoke of improvements in the art introduced in the reign of Tiberius, it was presumed that, though a vitrified substance was known, its qualities were not properly understood, and that its discovery only dated about the Augustan age. They even objected that under the first Emperors windows were made of a transparent stone, brought from Spain and other

[1] Plin. xxxvi. c. 26.

countries, called *Lapis specularis;* and they hence inferred the imperfect knowledge of glass.

This stone is now well known under the name of talc; it was only used in the houses of the rich, in litters, or as an ornament to the best apartments; other persons being content with linen, horn, or paper.

Such were the feeble arguments brought forward to disprove the use of glass for vases and for ornamental purposes among the Romans; but with much less reason did they apply to its invention in other countries; and though the Egyptians never knew the necessity, or rather the annoyance, of glass windows under a burning sun, they were well acquainted with vases of that material; and the workmen of Thebes and Memphis, and subsequently Alexandria, were famed for the excellent qualities of glass ware they produced, with which Rome continued to be supplied long after Egypt became a province of the empire. Strabo was informed by a glassmaker of Alexandria[1] that a peculiar earth was found in Egypt, without which it was impossible to manufacture certain kinds of glass of a brilliant and valuable quality; and some vases presented by an Egyptian priest to the Emperor Hadrian,[2] were considered so curious and valuable that they were only used on grand occasions.

Such, too, was the skill of the Egyptians in the manufacture of glass, and in the mode of staining it of various hues, that they counterfeited with success the amethyst and other precious stones, and even arrived at an excellence in the art which their successors have been unable to retain, and which our European workmen, in spite of their improvements in other branches of this manufacture, are still unable to imitate; for not only do the colours of some Egyptian opaque glass offer the most varied devices on the exterior, distributed with the regularity of a studied design, but the same hue and the same device pass in right lines directly through the substance; so that in whatever part it is broken, or wherever a section may chance to be made of it, the same appearance, the same colours, and the same device present themselves, without being found ever to deviate from the direction of a straight line from the external surface to the interior.

This quality of glass, of which I have seen several specimens, has been already noticed by the learned Winkelmann, who is

[1] Strabo, lib. xvii.

[2] Vopiscus, in Vitâ Saturnini, c. 8.

decidedly of opinion that 'the ancients carried the art of glass-making to a higher degree of perfection than ourselves, though it may appear a paradox to those who have not seen their works in this material.'[1] He describes two pieces of glass, found at Rome, a few years before he wrote, which were of the quality above mentioned.[2] 'One of them,' he says, 'though not quite an inch in length and a third of an inch in breadth, exhibits on a dark and variegated ground a bird resembling a duck, in very bright and varied colours, rather in the manner of a Chinese painting than a copy of nature. The outlines are bold and decided, the colours beautiful and pure, and the effect very pleasing, in consequence of the artist having alternately introduced an opaque and a transparent glass. The most delicate pencil of a miniature painter could not have traced with greater sharpness the circle of the eyeball, or the plumage of the neck and wings; at which part this specimen has been broken. But the most surprising thing is, that the reverse exhibits the same bird, in which it is impossible to discover any difference in the smallest details; whence it may be concluded that the figure of the bird continues through its entire thickness. The picture has a granular appearance on both sides, and seems to have been formed of single pieces, like mosaic work, united with so much skill, that the most powerful magnifying-glass is unable to discover their junction.

'From the condition of this fragment, it was at first difficult to form any idea of the process employed in its manufacture; and we should have remained entirely ignorant of it had not the fracture shown that filaments of the same colours as on the surface of the glass, and throughout its whole diameter, passed from one side to the other; whence it has been concluded that the picture was composed of different cylinders of coloured glass, which being subjected to a proper degree of heat, united by (partial) fusion. I cannot suppose they would have taken so much trouble, and have been contented to make a picture only the sixth of an inch thick, while, by employing longer filaments, they might have produced one many inches in thickness, without occupying any additional time in the process; it is therefore probable this was cut from a larger or thicker piece, and the number of the pictures taken from the same depended on the length of the filaments, and the consequent thickness of the original mass.

[1] Winkelmann, 'Orig. de l'Art,' lib. i. 2, 19. [2] Ibid.

'The other specimen, also broken, and about the size of the preceding one, is made in the same manner. It exhibits ornaments of a green, yellow, and white colour, on a blue ground, which consist of volutes, strings of beads, and flowers, ending in pyramidical points. All the details are perfectly distinct and unconfused, and yet so very minute, that the keenest eye is unable to follow the delicate lines in which the volutes terminate; the ornaments, however, are all continued, without interruption, through the entire thickness of the piece.'[1]

Sometimes, when the specimens were very thin, they applied and cemented them to a small slab of stone of their own size, which served as a support at the back; and by this means they were enabled to cut them much thinner, and consequently to increase their number.

Two of the most curious specimens I have seen of this kind of glass have been brought to England. One is in the possession of Captain Henvey, R.N., to whose kindness I am indebted for the copy I have given of it, and of the bead before mentioned. The other was found in Egypt by Dr. Hogg.[2]

The quality and the distribution of the colours in Captain Henvey's specimen are strikingly beautiful; the total size is about $1\frac{2}{10}$ inch square; and the ground is of an amethyst hue. In the centre is a device consisting of a yellow circle, surrounded by light blue with a bright red border, and on the four sides shoot forth light blue rays edged with white. Around this, which is isolated, runs a square ornament of bright yellow, divided into distinct parts, formed by openings in each of the sides; and at the four corners a beautiful device projects, like a leaf, formed of a succession of minute lines, green, red, and white, the last two encircling the green nucleus, which meet in a common point towards the base, and terminate in almost imperceptible tenuity. The delicacy of some of the lines is truly surprising, and not less the accuracy with which the patterns are executed; and the brilliancy of the colours is as remarkable as the harmony maintained in their disposition: an art then much

[1] The glass described by Winkelmann is of the later Ptolemaic, or Roman period, and was not made by the Egyptians at an older period. It was produced chiefly at Alexandria, and used for small objects, and similar specimens are not uncommonly found at Rome, which was supplied with glass from Egypt. This kind was made in cylindrical or square rods, the glass being arranged in patterns vertically, and horizontal sections taken which had the pattern on each side.—S. B.

[2] Plate XIV., *figs.* 5, 6, 7. Now in the British Museum. It represents the side of a throne of a deity or king, with feathered or scale ornaments, and, like all these specimens, is of a late period.—S. B.

more studiously attended to, and far better understood, than at the present day.

The secret of making these glass ornaments is more readily explained from this specimen than any I have met with. It consists of separate squares, whose original division is readily discovered in a bright light, as well as the manner of adjusting the different parts and of uniting them in one mass; and here and there we find that the heat applied to cement the squares has caused the colours to run between them, in consequence of partial fusion from too strong a fire. This fact, and the disposition of the separate squares, will be better understood from a reference to the plate (XIV., *figs.* 5, 6, 7), from which, too, some idea may be obtained of the fineness of the lines composing the devices.

Not only were these various parts made at different times, and afterwards united by heat, rendered effective on their surfaces by means of a flux applied to them, but each coloured line was at first separate, and, when adjusted in its proper place, was connected with those around it by the same process; and these, as Winkelmann very properly suggests, were cylinders or laminæ, according to the pattern proposed, which passed in direct lines through the substance or ground in which they were imbedded.

Paw, Goguet, and other antiquaries had long ago been convinced that glass was known to the Egyptians, as well as to the Phœnicians, at a very remote period, and the immense emeralds mentioned by ancient authors were considered glass imitations of those precious stones; a conjecture rendered still more plausible by the experience of modern times, which shows that the most noted jewels of Christian churches are frequently formed of the same materials. Such were the colossal statue of Serapis,[1] in the Egyptian labyrinth, nine cubits, or thirteen feet and a half, in height; an emerald presented by the king of Babylon to an Egyptian Pharaoh,[2] which was four cubits, or six feet, long, and three cubits broad; and an obelisk[3] in the temple of Jupiter, which was forty cubits, or sixty feet, in height, and four cubits broad, composed of four emeralds.[4]

The opinion of those writers respecting the early invention

[1] Plin. lib. xxxvii. 5, on the authority of Apion, surnamed Plistonices.

[2] Plin. *loc. cit.* on the authority of Theophrastus.

[3] Plin. *loc. cit.* See also Theophrastus on Stones, s. 44.

[4] To have made them of glass required extraordinary skill.

of glass is now fully confirmed; and whether the first idea originated with the Phœnicians, or their neighbours the Egyptians, we have satisfactory evidence of its use 3300, or perhaps 3500, years ago.

Of the different purposes to which glass was applied by the ancients, Winkelmann gives a further account in the same chapter, where he pronounces his opinion that, 'generally speaking, it was employed more frequently in ancient than in modern times;' and cites, as another proof of their great skill in its manufacture, the vase preserved in the Palazzo Barberini, at Rome, which, from the manner in which the layers of colour were united, 'had been mistaken for a real sardonyx.' It is the same that is now in the British Museum, and known by the name of the Portland vase.[1]

That the Egyptians, at the early period of the 18th Dynasty, were well acquainted not only with the manufacture of common glass, for beads and bottles of ordinary quality, but with the art of staining it of divers colours, is sufficiently proved by the fragments found in the tombs of Thebes; and so skilful were they in this complicated process, that they imitated the most fanciful devices, and succeeded in counterfeiting the rich hues and brilliancy of precious stones.[2] The green emerald, the purple amethyst, and other expensive gems were successfully imitated; a necklace of false stones could be purchased at a Theban jeweller's, to please the wearer or deceive a stranger, by the appearance of reality; and the feelings of envy might be partially allayed, and the love of show be gratified, by these specious substitutes for real jewels.

Pliny states[3] that the emerald was more easily counterfeited than any other gem, and considers the art of imitating precious stones a far more lucrative piece of deceit than any devised by the ingenuity of man: Egypt was, as usual, the country most

[1] Some imitations of it were made by Wedgwood. This vase is of blue glass, with white figures in relief, which have been subsequently polished and chased by the wheel or graver. One side represents the capture of Thetis by Peleus, the other is unknown. It is said to have been found in the sarcophagus of Alexander Severus, in the Monte del Grano, near Rome, in a large sarcophagus, which is of the period, if not of the emperor, and the vase is of Greek or Græco-Roman work. It has been often described. (G. Millingen, 'Ancient Unedited Monuments,' pl. A.)—S. B.

[2] Seneca says that Democritus first showed the method of polishing ivory, and of imitating precious stones (Epist. 90); but this was long after the art was common in Egypt. Plin. xxxvi. 26, and Herodot. ii. 69, who calls them λίθινα χώτα, or melted composition of stone.

[3] 'Non est smaragdo alia imitabilior gemma mendacio vitri;' and 'ex crystallo tinguantur smaragdi, ... neque est ulla fraus vitæ lucrosior' (lib. x. xxvii. c. 12, 33, 75).

noted for its skill in this manufacture,[1] and Strabo[2] says, 'that an earth found there was the only kind which would answer for certain rich and variegated compositions.' The emeralds mentioned by Apion and Theophrastus, which, as before observed, are supposed to have been of glass, might also be cited to show that the art was known in a Pharaonic age, if we had not abundant and far more satisfactory proofs from specimens found in the ruins of Thebes; and we can readily believe the assertion of Pliny, that in his time they succeeded so completely in the imitation as to render it 'difficult to distinguish false from real stones.'[3]

Many, in the form of beads, have been met with in different parts of Egypt, particularly at Thebes; and so far did the Egyptians carry this spirit of imitation, that even small figures, scarabæi, and objects made of ordinary porcelain, were counterfeited, being composed of still cheaper materials. A figure which was entirely of earthenware, with a glazed exterior, underwent a somewhat more complicated process than when cut out of stone, and simply covered with a vitrified coating: this last could therefore be sold at a low price; it offered all the brilliancy of the former, and its weight alone betrayed its inferiority; by which means, whatever was novel or pleasing from external appearance, was placed within reach of all classes; or at least the possessor had the satisfaction of appearing to partake in each fashionable novelty.

Such inventions, and successful endeavours to imitate costly ornaments by humbler materials, not only show the progress of art among the Egyptians, but strongly argue the great advancement they had made in the customs of civilised life; since it is certain, that until society has arrived at a high degree of luxury and refinement, artificial wants of this nature are not created, and the lower classes do not yet feel the desire of imitating their wealthier superiors, in the adoption of objects dependent on taste or accidental caprice.

Glass bugles and beads were much used by the Egyptians for necklaces, and for a sort of network with which they covered the wrappers and cartonage of mummies, arranged so as to form, by their varied hues, numerous devices and figures, in the manner of

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[1] The memoir of M. Boudet, 'Sur l'Art de la Verrerie, né en Égypte,' in that valuable work the 'Description de l'Égypte,' vol. ix. p. 213.

[2] Strabo, lib. xvi. p. 521, ed. Cas.

[3] Plin. xxxvii. 12.

our bead purses; and the ladies sometimes amused themselves by stringing them for ornamental purposes, as at the present day.

The principal use to which glass was applied by the Egyptians (besides the beads and fancy work already noticed) was for the manufacture of bottles, vases, and other utensils; wine was frequently brought to table in a bottle, or handed to a guest in a cup[1] of this material, and a body was sometimes buried in a glass coffin.[2] Occasionally a granite sarcophagus was covered with a coating of vitrified matter, usually of a deep green colour, which displayed, by its transparency, the sculptures or hieroglyphic legends engraved upon the stone: a process well understood by the Egyptians, and the same they employed in many of the blue figures of pottery and stone commonly found in their tombs; the stone, in one case, being covered with a composition capable of vitrifying, and then exposed to a certain degree of heat until properly melted and diffused over the surface, and in the other dipped into a mixture, which was vitrified in the same manner.[3]

Like the Romans, they used glass for mosaic work, and pieces of various colours were employed in fancy ornaments, in the figures of deities, in sacred emblems, and in the different objects for which inlaid work was particularly adapted, the quality there used being generally of an opaque kind.[4] In some of these vitrified compositions, the colours have a brilliancy which is truly surprising; the blues which are given by copper are vivid and beautifully clear; and one of the reds, which is probably derived from minium, has all the intenseness of *rosso antico*, with the brightness of the glassy material in which it is found; thus combining the qualities of a rich enamel.

Many of the cups discovered at Thebes present a tasteful arrangement of varied hues, and evince the great skill of the Egyptians in the manufacture of porcelain; and no one can

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[1] In Rome the use of glass vases superseded that of gold and silver (Plin. xxxvi. 26).

[2] Alexander the Great was said to have been buried in a glass coffin at Alexandria. [Of glass as known to the ancient Greeks, see Aristotle, 'Problem.,' and Aristophanes, 'Clouds,' 756.—G. W.]

[3] The principal material used for glazing was the steatite already mentioned, and that chiefly for smaller objects, as scarabæi, cylinders, small cups, figures, &c.—S. B.

[4] The principal employment was for inlaying hieroglyphs and figures on walls and other places, in a kind of toreutic work, the parts representing the flesh of deities being blue, and of mortals red. The hieroglyphic objects were of their appropriate colours; white, yellow, blue, and red are found. Large specimens, probably from the walls, were found at Tel-el-Yahoudeh. At the Ptolemaic period, small figures of deities, principally Isis and Nephthys, made for attaching to necklaces, of dark blue glass produced by cobalt, are found.—S. B.

examine similar specimens without feeling convinced of the great experience they possessed in this branch of art. The manner in which the colours are blended and arranged, the minuteness of the lines, frequently tapering off to an almost imperceptible fineness, and the varied directions of tortuous curves traversing the substance, but strictly conforming to the pattern designed by the artist, display no ordinary skill, and show that they were perfect masters of the means employed to produce the effect proposed.

The Egyptian porcelain[1] should perhaps be denominated glass-porcelain, as partaking of the quality of the two, and not being altogether unlike the porcelain-glass invented by the celebrated Réaumur; who discovered, during his curious experiments on different qualities of porcelain, the method of converting glass into a substance very similar to chinaware.

The ground of Egyptian porcelain is generally of one homogeneous quality and hue, either blue or green, traversed in every direction by lines or devices of other colours—red, white, yellow, black, light or dark blue, and green, or whatever the artist chose to introduce; and these are not always confined to the surface, but frequently penetrate considerably into the ground, sometimes having passed half, at others entirely through, the fused substance; in which respect they differ from the porcelain of China, where the flowers or patterns are applied to the surface, and perhaps justify the use of the term glass-porcelain, which I have adopted. In some instances, the yellows were put on after the other colours, upon the surface of the vase, which was then again subjected to a proper degree of heat; and after this, the handles, the rim, and the base were added, and fixed by a repetition of the same process. It was not without considerable risk that these additions were made, and many vases were broken during the operation; to which Martial alludes, in an epigram on the glass cups of the Egyptians.[2]

That the Egyptians possessed considerable knowledge of

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[1] On the porcelain of Egypt, see Birch, 'History of Ancient Pottery,' 8vo, Lond., 1873, p. 47. It was made of a white sand, slightly fused, and then covered by a coloured body or glaze. It was not a true porcelain, but rather a kind of faïence.—S. B.

[2] Martial, Epig. lib. xiv. 115. [The epigram is headed by the word '*Murrhina*.' If of the feminine gender, this signifies 'perfumed wine;' it is more frequently spelt *Murhina*. If neuter, it signifies murrhine cups, which are often called simply *murrha*. By comparing the 13th book of Martial's Epigrams with the 14th, we see the latter —'Murrhine cups'—is more probable; had he meant 'perfumed wine,' he would have placed the epigram in book xiii.—G. W.]

chemistry and the use of metallic oxides, is evident from the nature of the colours applied to their glass and porcelain; and they were even acquainted with the influence of acids upon colour, being able, in the process of dyeing or staining cloth, to bring about certain changes in the hues,[1] by the same means adopted in our own cotton works, as I shall show in describing the manufactures of the Egyptians.

It is evident that the art of cutting glass was known to the Egyptians at the most remote periods, hieroglyphics and various devices being engraved upon vases and beads made in the time of the 18th Dynasty; and some glass, particularly that which bears figures or ornaments in relief, was cast in a mould. Some have supposed that the method of cutting glass was unknown to the ancients, and have limited the period of its invention to the commencement of the seventeenth century of our era, when Gaspar Lehmann, at Prague, first succeeded in it, and obtained a patent from the Emperor Rodolph II.; but we may infer from the authority of Pliny, that glass-cutting was known to the ancients, and that the diamond was used for the purpose as at the present day, even if they were ignorant of the art of cutting this stone with its own dust. 'Diamonds,' says that author,[2] 'are eagerly sought by lapidaries, who set them in iron handles, for they have the power of penetrating anything, however hard it may be.' He also states that emeralds and other hard stones were engraved, though in early times it was 'considered wrong to violate gems with any figures or devices;'[3] and the diamond was found capable of cutting those of the hardest quality, 'for all gems,' he observes, 'may be engraved by the diamond.'[4]

It is difficult to decide upon the precise method adopted by the Egyptians for cutting glass and hard stones; but if nothing remains to show the process they employed, there is sufficient evidence of its effect; and their early intercourse with India may have led them to the knowledge of the diamond, and of its great utility in engraving those materials. It is also probable that emery powder, as I shall hereafter have occasion to observe, and the lapidary's wheel, were used in Egypt; and there is little doubt that the Israelites learnt the art of cutting and engraving stones in that country.[5]

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[1] Plin. xxxv. 11.
[2] Ibid. xxxvii. 4.
[3] Ibid. xxxvii. Proem. and xxxiii. 1. He thinks the stone of Polycrates' ring was a sardonyx (xxxvii. 1).
[4] Ibid. xxxvi. 13.
[5] The stones engraved by the Israelites were the sardius, topaz, and carbuncle;

Some glass bottles were enclosed in wicker-work,[1] very nearly resembling what is now called by the Egyptians a *damagán:* they were generally of considerable size, holding from one to two gallons of fluid; and some of a smaller size, from six to nine

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No. 383. *Fig.* 1. Has apparently leather sewed over the glass.
2. Glass *damagán* enclosed in wicker-work.
3. Glass bottle covered with papyrus rush, like the Florence oil-flasks.
4. A piece of cloth with a border of a blue colour. *Harrow Museum.*

inches in height, were protected by a covering made of the stalks of the papyrus or *cyperus* rush, like the modern bottles containing Florence oil:[2] others again appear to have been partly cased in leather, sewed over them, much in the same manner as some now made for carrying liquids on a journey.[3]

Among the many bottles found in the tombs of Thebes, none have excited greater curiosity and surprise than those of Chinese manufacture, presenting inscriptions in that language. The accidental discovery of a single bottle of this kind would naturally pass unheeded, and if we felt surprised that it should be deposited in an Egyptian sepulchre, conjecture would reasonably suggest that an accidental visitor in later times might have dropped it there, while searching for ancient treasures of a more

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the emerald, sapphire, and *diamond;* the ligure, agate, and amethyst; the beryl, onyx, and jasper. (Exod. xxviii. 17–20, and xxxix. 10–13.)

[1] Woodcut No. 383, *fig.* 2.

[2] Woodcut No. 383, *fig.* 3.

[3] Woodcut No. 383, *fig.* 1. The vases of transparent glass, dark green, with globular or conical bodies and long necks, like the Roman unguentaria, appear. Some of these were found in a tomb of the age of the 26th Dynasty at Gizeh. A few of these bottles, with more oblate bodies, and of a white or light blue colour, are in different collections, and are possibly earlier; but the oldest known dated specimen of transparent glass is the kind of alabastos, stamped with the name of Sargon, B.C. 607. —S. B.

valuable kind. But this explanation ceases to be admissible, when we find the same have been discovered in various Theban tombs. I myself have seen several, two of which I brought to England;[1] another is described by Rosellini,[2] and found by him 'in a previously unopened tomb, of uncertain date, which' he refers, 'from the style of the sculptures, to a Pharaonic period, not much later than the 18th Dynasty;' a fourth is in the museum

No. 384. Chinese bottles found in the Egyptian tombs.

Fig. 1. In the Museum of Alnwick Castle.
2. Brought by me from Thebes.
3. Belonging to Mr. W. Hamilton.
4. From Thebes.

at Jersey; another was purchased by the late Duke of Northumberland, at Coptos, and is now in the Museum at Alnwick Castle; two others are in the possession of Mrs. Bowen; and another belongs to Mr. W. Hamilton. They are about two inches in height: one side presents a flower, and the other an inscrip-

[1] One is in the British Museum.
[2] In his extensive work on the Egyptian Monuments, part 2, vol. ii. p. 337.

tion, containing, according to the valuable authority of Sir J. Davis (in three out of the eight), the following legend—'The flower opens, and lo! another year;' and another has been translated by Thoms, 'During the shining of the Moon the fir-tree sends forth its sap,' which in a thousand years becomes amber.

The quality of these bottles is very inferior, and they appear to have been made before the manufacture of porcelain had attained the same degree of perfection in China as in after-times. A paper presented by Medhurst to the Royal Asiatic Society would establish the fact of their having been brought by the Arab traders, if, as there stated, the style of the characters did not come into use till the third century of our era, and the poems, from which the sentences were taken, were not written till the 8th and 11th centuries. The earliest mention of porcelain in China is also limited to the 2nd century B.C. A similar bottle was found by Mr. Layard at Arban, on the Khaboor.

[It is now known that these bottles are of a comparatively recent period. M. Prisse discovered, by questioning the Arabs of Cairo engaged in selling objects of antiquity, that they confessed the bottles were never found in the tombs or ruins, and that the greater part of the bottles came from Qous, Keft, and Cosseir, depôts of the commerce with India on the Red Sea. The interpretation of the inscriptions of some of these bottles has been given by Medhurst,[1] and they are verses of poets who flourished in the 7th and 8th centuries A.D. The one translated by Sir J. Davis—reading *Hwa kae yew yih neen*, 'The flower opens to another year'—is a verse of the poet Wei ying wuh, who wrote from A.D. 702 to 725. Another bottle (*d*) has *Che tsai tsze shan chung*, 'Alone on the mountain,' taken from the poet Keih taou, who flourished A.D. 831–837.[2] The other inscription about the fir-tree on bottle *fig.* 2 has not been identified with the composition of the poet who wrote it. Some translate, 'Few know it.' The bottles resemble in shape those used by the Chinese for holding snuff.—S. B.]

It has been questioned if the Egyptians understood the art of enamelling upon gold or silver, though, even in the absence of

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[1] Transactions of the China branch of the Royal Asiatic Society. Pt. iii. 1851–1852, pp. 34–41.

[2] Jacquemart and Le Blant, 'Histoire de la Porcelaine,' fol., Paris, 1862, p. 192 and foll.

further evidence, we might infer it from an expression of Pliny,[1] who says, 'The Egyptians paint their silver vases, representing Anubis upon them, the silver being painted and not engraved.' Small gold figures are frequently found with ornamented wings and bodies, whose feathers, faces, or other coloured parts are composed of a vitrified composition, let into the metal; some again appear to have been really enamelled; and it is probable that the early specimens of *encaustum* were made by tooling the devices to a certain depth on bronze, and pouring a vitrified composition into the hollow space, the metal being properly heated at the same time; and when fixed, the surface was smoothed down and polished.

Both the encaustic painting in wax, and that which consisted in burning in the colours, were evidently known to the ancients, being mentioned by Pliny,[2] Ovid,[3] Martial,[4] and others; and the latter is supposed to have been on the same principle as our enamelling on gold. Pliny[5] says it was uncertain to whom the invention was due: some ascribed it to Aristides, as that of perfecting the art to Praxiteles; but he supposes 'it was known, long before that time, to Polygnotus, Nicanor, and Arcesilaus of Paros.' Bottles of various kinds, glass, porcelain, alabaster, and other materials, were frequently exported from Egypt to other countries. The Greeks, the Etruscans, and the Romans received them as articles of luxury, which, being remarkable for their beauty, were prized as ornaments of the table; and when Egypt became a Roman province, part of the tribute annually paid to the conquerors consisted of glass vases, from the manufactories of Memphis and Alexandria.[6] The intercourse between Egypt and Greece had been constantly kept up after the accession of Psammatichus and Amasis; and the former, the parent of the arts at that period, supplied the Greeks and some of the Syrian tribes with the manufactures they required.

The Etruscans, a commercial people, appear to have traded with Egypt, about, or a little after, the same period, and we repeatedly find small alabaster and porcelain bottles in their tombs, which have all the character of the Egyptian; and not only does

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[1] Plin. xxxiii. 9. [2] Ibid. xxxv. 11.
[3] Ovid, Fast. lib. viii. 275.
[4] Mart. Epig. lib. iv. ep. 39.
[5] Plin. xxxv. 11.
[6] Great quantities of glass of all sorts and shapes were made at Alexandria during the Roman period. One great branch of the manufacture was the production of glass cameos, like the Portland vase. The sand of Alexandria is stated by Strabo to have produced excellent glass, and the glass-works of Egypt, especially of Alexandria, successfully competed with those of Sidon. —S. B.

the stone of the former proclaim by its quality the quarries from which it was taken, but the form and style of the workmanship leave no doubt of the bottles themselves being the productions of Egyptian artists.

It is uncertain of what stone the murrhine vases mentioned by Pliny,[1] Martial, and other writers, were made; it was of various colours, beautifully blended, and even iridescent, and was obtained in greater quantity in Carmania than in any country. It was also found in Parthia and other districts of Asia, but unknown in Egypt: a fact quite consistent with the notion of its being fluor-spar, which is not met with in the valley of the Nile; and explaining the reason why the Egyptians imitated it with the composition known under the name of false murrhine, said to have been made at Thebes[2] and Memphis. The description given by Pliny certainly bears a stronger resemblance to the fluor-spar than to any other stone, and the only objection to this having been murrhine arises from our not finding any vases or fragments of it; and some may still be disposed to doubt if the stone is known to which the naturalist alludes. But the fluor-spar appears to have the strongest claim; and the porcelain of Egypt, whose various colours are disposed in waving lines, as if to imitate the natural undulations of that crystallised substance,[3] may perhaps be looked upon with reason as the false murrhine of the ancients.

It is difficult to say whether the Egyptians employed glass for the purpose of making lamps or lanterns: ancient authors give us no direct information on the subject; and the paintings offer no representation which can be proved to indicate a lamp, a torch, or any other kind of light.[4]

Herodotus[5] mentions a '*fête* of burning lamps' which took place at Saïs, and indeed throughout the country, at a certain period of the year, and describes the lamps used on this occasion as 'small vases filled with salt and olive oil, on which the wick floated and burnt during the whole night;' but it does not

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[1] Plin. xxxvii. 2.

[2] Arrian (in his 'Periplus of the Red Sea,' p. 3) mentions λιθίας ὕαλης πλειόνα γένη, καὶ ἄλλης μορρίνης τῆς γενομένης ἐν Διόσπολει. At Medeenet Haboo are numerous agatised pebbles, which were evidently brought there (the nearest known spot where they are found being Nubia), but at what period is uncertain. Were they not for some purpose connected with art? If so, it is not probable they were brought there by the Christians, though generally found upon the surface of the mounds.

[3] Woodcuts No. 280, *fig.* 2; and No. 281, *figs.* 4 and 9.

[4] In the funeral processions one person carries what seems to be a candle or torch.

[5] Herodot. ii. 62.

appear of what materials those vases were made, though we may reasonably suppose them to have been of glass.[1]

The sculptures of Tel el Amárna, again, represent a guard of soldiers, one of whom holds before him what resembles, and may be considered, a lantern; but here too there is great uncertainty, and neither of these is sufficient to decide the question.

A guard apparently with a lantern.
No. 385. *Tel el Amárna.*

The Egyptians, from a most remote era, were celebrated for their manufacture of linen and other cloths, and the produce of their looms was exported to and eagerly purchased by foreign nations. The fine linen and embroidered work, the yarn and woollen stuffs, of the upper and lower country, are frequently mentioned, and were highly esteemed.[2] Solomon purchased many of those commodities, as well as chariots and horses, from Egypt; and Chemmis, the city of Pan, retained[3] the credit it had acquired in making linen stuffs nearly till the period of the Roman conquest.

Woollen garments were chiefly used by the lower orders: sometimes also by the rich, and even by the priests, who were permitted to wear an upper robe in the form of a cloak of this material; but under-garments of wool were strictly forbidden them, upon a principle of cleanliness; and as they took so much pains to cleanse and shave the body, they considered it inconsistent to adopt clothes made of the hair of animals.[4] No one was allowed to be buried in a woollen garment,[5] in consequence, as I have already observed, of its engendering worms, which

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[1] No lamps made of terra-cotta have been found in Egypt older than the Roman period, nor has any glass vessel that could possibly have been used as a lamp been discovered. That the Egyptians used lights and oil for the purpose of illumination is clear from the temples and inscriptions, but the particular shape of the lamp is not known.—S. B.

[2] There is no mention of woollen stuffs in any of the lists hitherto found, or in the papyrus of Rameses III., in which the offerings and gifts to the temples are described in detail.—S. B.

[3] Strabo, xvii. p. 559.

[4] Herodot. ii. 81.

[5] Wool is exceptionally found on the mummies in the Tombs. The workmen buried in the Tourah quarries had woollen wraps; and part of a woollen cloth wrap, with patterns in various colours, was found on a body amidst the rubbish of the Pyramid. The age of these mummies is, however, uncertain.—S. B.

would injure the body; nor could any priest enter a temple without taking off this part of his dress.

The quantity of linen manufactured and used in Egypt was truly surprising; and independent of that made up into articles of dress, the great abundance used for enveloping the mummies, both of men and animals, shows how large a supply must have been kept ready for the constant demand at home, as well as for that of the foreign market.

That the bandages employed in wrapping the dead are of linen, and not, as some have imagined, of cotton, has been already ascertained by the most satisfactory tests; and though no one, even among the unscientific inhabitants of modern Egypt, ever thought of questioning the fact, received opinion in Europe had till lately decided that they were cotton; and it was forbidden to doubt that 'the bands of *byssine* linen' said by Herodotus[1] to have been used for enveloping the mummies, were cotton. My own impression had certainly been that the mummy cloths were invariably linen, but positive experience had not then confirmed my opinion, and I reluctantly yielded to the universal belief, and concluded that some at least might be cotton.

The accurate experiments made, with the aid of powerful microscopes, by Ure,[2] Bauer, Thompson,[3] and others, on the nature of the fibres of linen and cotton threads, have shown that the former invariably present a cylindrical form, transparent, and articulated or jointed like a cane, while the latter offer the appearance of a flat ribbon, with a hem or border at each edge; so that there is no possibility of mistaking the fibres of either, except, perhaps, when the cotton is in an unripe state, and the flattened shape of the centre is less apparent. The results having been found similar in every instance, and the structure of the fibres thus unquestionably determined, the threads of mummy cloths were submitted to the same test, and no exception was found to their being linen, nor were they even a mixture of linen and cotton thread.

The fact of the mummy cloths being linen is therefore decided.[4] It now remains to inquire into the nature of the *byssus*, in which I confess considerable difficulty presents itself, owing to the

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[1] Herodot. ii. 86.

[2] Ure's 'Philosophy of Manufactures,' p. 95.

[3] Mr. Thompson on the Mummy Cloth of Egypt.

[4] This question, with all the authorities on the subject, is detailed in Yates, 'Textrinum Antiquorum,' 8vo. Lond. 1843, p. 254 and foll.—S. B.

Hebrew *shash* being translated *byssos* in the Septuagint Version, and in our own, 'fine linen;'[1] and to *shash* being the name applied at this day by the Arabs to fine muslin, which is of cotton and not of linen:[2] for the similarity of the words in these cognate languages argues in favour[3] of the same meaning. On the other hand, Herodotus says the mummy cloths were 'of *byssine sindon*,'[4] and they are found to be invariably linen: he uses the expression 'tree wool' to denote cotton;[5] and Julius Pollux adopts the same name,[6] distinguishing it also from byssus, which he calls a species of Indian flax. The use of the two words *byssus* and *linon* presents no difficulty, since they might be employed, like our flax and linen, to signify the plant and the substance made from it.[7]

Cotton cloth, however, was among the manufactures of Egypt, and dresses of this material were worn by all classes. Pliny states that the Egyptian priests, though they used linen, were particularly partial to cotton robes,[8] and 'cotton garments,' supplied by the Government for the use of the temples,[9] are distinctly mentioned in the Rosetta stone. Herodotus and Plutarch[10] affirm that linen was preferred, owing as well to its freshness in a hot climate as to its great tendency to keep the body clean, and that a religious prejudice forbade the priests to wear vestments of any other quality;[11] we may, however, conclude that this refers to the inner portion of the dress; and the prohibition of entering a temple with cotton or woollen garments may have led to the notion that none but linen were worn by them at any time. The same custom was adopted by the votaries of Isis, when her rites were introduced by the Greeks and Romans;[12] and linen dresses were appropriated to those who had been initiated[13] in the sacred mysteries.

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[1] In Exodus xxv. 4; in Coptic, *shens*.

[2] The word *byssos* is derived from the Egyptian *hbos*, 'to clothe,' or 'clothes.' It is supposed to mean flax; but that was called *h'mā* or *māh*.—S. B.

[3] There are instances to the contrary, as *kussuf*, 'silver,' in Hebrew, and *kussuh*, 'gold lace,' in Arabic, and others.

[4] Herodot. *loc. cit.* *Sindon* is unquestionably linen. *Sindon* is probably the Hellenised form of the Egyptian word *shenti*, which was applied to a garment.

[5] Herodot. iii. 47.

[6] J. Pollux, Onom. vii. 17.

[7] The other Greek term applied to linen was *phōsōn*, a coarse cloth or canvas, used for towels or sails, found in Egyptian as *pes*, and apparently referring to the prepared or boiled nature of the material, and used for towels and sails. (Yates, 'Textrinum Antiquorum,' p. 265.)—S. B.

[8] Plin. xix. 1.

[9] 'The sacred robes with which the statues of the gods are adorned.' (Plut. de Isid. s. 78.)

[10] Plut. de Isid. s. 4.

[11] Herodot. ii. 37: 'The priests . . . wear only one robe of linen, and sandals of the byblus. They are not allowed to have any other vestment, or covering to the feet.'

[12] Plut. de Isid. s. 3.

[13] Apul. Metam. lib. xi. [Hence 'liniger sacerdos,' applied to the Egyptian priests. (Lucan, Phars. ix. 159.)—G. W.]

Whatever restrictions may have been in force respecting the use of cotton among the priesthood, it is probable that other individuals were permitted to consult their own choice on this point; and it was immaterial whether they preferred, during life, the coolness of flax, or the softness of cotton raiment, provided the body, after death, was enveloped in bandages of linen;[1] and this regulation accounts for the mummy cloths of the poorest individuals being invariably found of that material.

It was not only for articles of dress that cotton was manufactured by the Egyptians; a great quantity was used for the furniture of their houses, the coverings of chairs and couches, and various other purposes; and a sort of cloth was made of the united filaments of flax and cotton. This is mentioned by Julius Pollux, who, after describing the cotton plant as an Egyptian production, and stating that cloth was manufactured of the 'wool of its nut,' says they sometimes 'make the woof of it, and the warp of linen.'[2] The Jews[3] were forbidden to wear dresses of wool and linen—a quality of cloth still manufactured by the modern Egyptians.

From the few representations which occur in the tombs of Thebes, it has been supposed that the Egyptian looms were of rude construction, and totally incapable of producing the fine linen so much admired by the ancients; and as the paintings in which they occur were executed at a very early period, it has been conjectured that, in after-times, great improvements took place in their construction. But when we consider with what simple means Oriental nations are in the habit of executing the most delicate and complicated work, we cease to feel surprised at the apparent imperfection of the mechanism or instruments used by the Egyptians; and it is probable that their far-famed 'fine linen,' mentioned in Scripture and by ancient writers,[4] was produced from looms of the same construction as those represented in the paintings of Thebes and Eileithyia. Nor was the praise bestowed upon that manufacture unmerited;[5] and as I have already observed, the quality of some extant specimens of linen fully justifies it, and excites equal admiration at the present

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[1] In England woollen cloth has been chosen for this purpose, in order to encourage the staple commodity of the country.

[2] J. Pollux, Onom. vii. 17.

[3] Deut. xxii. 11.

[4] Pliny allows that the Egyptians invented the art of weaving (vii. 56); and Athenæus ascribes it to Pathymias the Egyptian (Deipn. lib. ii.).

[5] Some was so fine that it obtained the appellation of 'woven air.'

day, being to the touch comparable to silk, and not inferior in texture to our finest cambric.

The mummy cloths are generally of a very coarse quality; and little attention was bestowed on the disposition of the threads in the cloths of ordinary manufacture. Mr. Thompson, who examined many specimens of them, is of opinion that the number of threads in the warp invariably exceeded those in the woof, occasionally even by four times the quantity; and as his observations are highly interesting, I shall introduce an extract from his pamphlet on the subject.

'Of the products of the Egyptian loom, we know scarcely more than the mummy pits have disclosed to us; and it would be as unreasonable to look through modern sepulchres for specimens and proofs of the state of manufacturing art amongst ourselves, as to deduce an opinion of the skill of the Egyptians from those fragments of cloth which envelope their dead, and have come down, almost unchanged, to our own time. The curious or costly fabrics which adorned the living, and were the pride of the industry and skill of Thebes, have perished ages ago. There are, however, amongst these remains, some which are not unworthy of notice, which carry us back into the workshops of former times, and exhibit to us the actual labours of weavers and dyers of Egypt more than 2000 years ago.

'The great mass of the mummy cloth employed in bandages and coverings, whether of birds, animals, or the human species, is of coarse texture, especially that more immediately in contact with the body, which is generally impregnated with resinous or bituminous matter. The upper bandages, nearer the surface, are finer. Sometimes the whole is enveloped in a covering coarse and thick, and very like the sacking of the present day; sometimes in cloth coarse and open, like that used in our cheese-presses, for which it might easily be mistaken. In the College of Surgeons are various specimens of these cloths, some of which are very curious.

'The beauty of the texture and peculiarity in the structure of a mummy cloth given to me by Mr. Belzoni, were very striking. It was free from gum or resin, or impregnation of any kind, and had evidently been originally white. It was close and firm, yet very elastic. The yarn of both warp and woof was remarkably even and well spun. The thread of the warp was *double*, consisting of two fine threads twisted together. The woof was single. The warp contained 90 threads in an inch; the woof,

or weft, only 44. The fineness of these materials, estimated after the manner of cotton yarn, was about thirty hanks in the pound.

'The subsequent examination of a great variety of mummy cloths showed that the disparity between the warp and woof belonged to the system of manufacture, and that the warp generally had twice or thrice, and not seldom four times, the number of threads in an inch that the woof had: thus, a cloth containing 80 threads of warp in the inch, of a fineness about 24 hanks in the pound, had 40 threads in the woof; another with 120 threads of warp, of 30 hanks, had 40; and a third specimen only 30 threads in the woof. These have each respectively double, treble, and quadruple the number of threads in the warp that they have in the woof. This structure, so different from modern cloth, which has the proportions nearly equal, originated, probably, in the difficulty and tediousness of getting in the woof, when the shuttle was thrown by hand, which is the practice in India at the present day, and which there are weavers still living old enough to remember as the universal practice in this country.'

Mr. Thompson then mentions some fragments of mummy cloths sent to England by the late Mr. Salt, which he saw in the British Museum. They were 'of different degrees of fineness; some fringed at the ends, and some striped at the edges.' 'My first impression,' he continues, 'on seeing these cloths, was that the finest kinds were *muslin*, and of Indian manufacture, since we learn from the "Periplus of the Erythrean Sea," ascribed to Arrian, but more probably the work of some Greek merchant himself engaged in the trade, that muslins from the Ganges were an article of export from India to the Arabian Gulf: but this suspicion of their being cotton was soon removed by the microscope of Mr. Bauer, which showed that they were all, without exception, linen. Some were thin and transparent, and of very delicate texture. The finest appeared to be made of yarns of near 100 hanks in the pound, with 140[1] threads in the inch in the warp, and about 64 in the woof. A specimen of muslin in the museum of the East India House, the finest production of the Dacca loom, has only 100 threads in an inch in the warp, and 64 in the woof; but the surprising fineness of the yarn,

[1] The finest linen from recent researches is found to have 152 threads in the warp and 71 in the woof, while the coarser kinds vary from 80 to 120 threads in the warp to 40 in the woof. (Rev. Arch. 1870, pp. 217–221.)—S. B.

which, though spun by hand, is not less than 250 hanks in the pound, gives to this fabric its unrivalled tenuity and lightness.

'Some of the cloths were fringed at the ends, and one, a sort of scarf, about four feet long and twenty inches wide, was fringed at both ends. Three or four threads twisted together with the fingers to form a strong one, and two of these again twisted together, and knotted at the middle and at the end to prevent unravelling, formed the fringe, precisely like the silk shawls of the present day.

'The selvages of the Egyptian cloths are generally formed with the greatest care, and are well calculated by their strength to protect the cloth from accident. Fillets of strong cloth or tape also secure the ends of the pieces from injury, showing a knowledge of all the little resources of modern manufacture. Several of the specimens, both of fine and coarse cloth, were bordered with blue stripes of various patterns, and in some alternating with narrow lines of another colour. The width of the patterns varied from half an inch to an inch and a quarter. In the latter were seven blue stripes, the broadest about half an inch wide nearest the selvage, followed by five very narrow ones, and terminated by one an eighth of an inch broad. Had this pattern, instead of being confined to the edge of the cloth, been repeated across its whole breadth, it would have formed a modern gingham, which we can scarcely doubt was one of the articles of Egyptian industry.

'A small pattern, about half an inch broad, formed the edging of one of the finest of these cloths, and was composed of a stripe of blue, alternating with three lines of a fawn colour, forming a simple and elegant border. These stripes were produced in the loom by coloured threads previously dyed in the yarn. The nature of the fawn colour I was unable to determine. It was too much degraded by age, and the quantity too small to enable me to arrive at any satisfactory conclusion. Though I had no doubt the colouring matter of the blue stripes was indigo, I subjected the cloth to the following examination. Boiled in water for some time, the colour did not yield in the least; neither was it at all affected by soap, nor by strong alkalies: sulphuric acid, diluted only so far as not to destroy the cloth, had no action on the colour. Chloride of lime gradually reduced, and at last destroyed it. Strong nitric acid, dropped upon the blue, turned it orange, and in the same instant destroyed it. These tests prove the colouring matter of the stripes to be indigo.

'This dye was unknown to Herodotus, for he makes no mention of it. It was known to Pliny, who, though ignorant of its true nature and the history of its production, has correctly described the most characteristic of its properties, the emission of a beautiful purple vapour when exposed to heat. Had his commentators been acquainted with the sublimation of indigo, it would have saved many learned doubts. We learn from the Periplus, that it was an article of export from Barbarike on the Indus, to Egypt, where its employment by the manufacturers of that country, probably from a remote period, is clearly established by the specimens here described.'

I have a piece of cloth, which was brought from Thebes by Arundale, that offers a very good instance of the coloured border mentioned by Thompson. It is of ordinary quality; the number of threads in the inch are 96 in the warp, and 34 in the woof; and the border consists of one broad band and six narrow stripes, of a blue colour, evidently dyed with indigo. The band which is nearest the selvage is one inch and two-tenths in breadth; the others consist each of two threads, in the direction of the warp, with the exception of the innermost one, which is of five threads; and the dividing line between the fourth and fifth is varied by the introduction of a blue thread down the centre.[1] The rest of the cloth has the usual yellowish tinge, 'supposed to arise from some astringent preparation employed for its preservation,' which, according to Thompson, imparts to water a similar colour, but offers no trace of tannin. 'In none of the specimens I have examined,' he adds, 'did either gelatine or albumen, or solution of iron, afford any precipitate; but the subacetate of lead produced a cloud, indicating the presence of extractive matter.'

It is evident that the colour was imparted to the threads previous to the cloth being made,[2] as the blue remains unaltered; and the cloths with broad-coloured borders are the more curious, as they illustrate the representations in the paintings, and show that they were similar to those made by the looms used in the age of the Pharaohs of the 16th and 18th Dynasties, which occur in the tombs at Eileithyia and Thebes; and it is curious to see

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[1] Woodcut No. 383, *fig.* 4.

[2] As was the case with the threads used by the Israelites (Exod. xxxv. 25): 'And all the women that were wise-hearted did spin with their hands, and brought that which they had spun, both of blue, and of purple, and of scarlet, and of fine linen.'

the Nubians wearing shawls with the same blue borders, manufactured in the valley of the Nile, at the present day.

Another piece of linen, which I obtained at Thebes, has 152 threads in the warp, and 71 in the woof, to each inch; it is of a much darker hue than the cloth just mentioned, and was perhaps dyed with the *Carthamus tinctorius*,[1] or saff-flower, which Thompson supposes to have been used for this purpose. The piece of fine linen, previously alluded to, is of the same light-brown colour. Some idea may be given of its texture from the number of threads in the inch,[2] which is 540 (or 270 double threads) in the warp; and the limited proportion of 110 in the woof[3] shows the justness of Mr. Thompson's observation, that this disparity belonged to their 'system of manufacture,' since it is observable even in the finest quality of cloth.[4]

Another very remarkable circumstance in this specimen is, that it is covered with small figures and hieroglyphics, so finely drawn that here and there the lines are with difficulty followed by the eye; and as there is no appearance of the ink having run in any part of the cloth, it is evident they had previously prepared it for this purpose.

Pliny cites four qualities of linen, particularly noted in Egypt: the Tanitic and Pelusiac, the Butine and the Tentyritic; and mentions in the same place[5] the cotton-tree of Egypt, which he confines to the upper country. He also states that the quantity of flax cultivated in Egypt was accounted for by their exporting linen to Arabia and India; and the quality of that produced by the Egyptian looms is shown to have been far superior to any other.

The threads used for nets were remarkable for their fineness; 'and so delicate were some of them,' says Pliny,[6] 'that they would pass through a man's ring, and a single person could carry a sufficient number of them to surround a whole wood. Julius Lupus, who died while governor of Egypt, had some of these nets, each string of which consisted of 150 threads—a fact

[1] I am still doubtful if it was indigenous in Egypt.

[2] Some of our cambric has only 160 in an inch of warp, and 140 of the woof.

[3] The Egyptians, instead of throwing the shuttle, appear to have put in the thread by means of a rod with a hook at either end. Woodcuts Nos. 110 and 387.

[4] [Conf. Hesiod, Op. et Dies, 536, where he is directing how to make a warm winter garment.—G. W.]

[5] Plin. xix. 1: 'Superior pars Ægypti in Arabiam vergens gignit fruticem, quem aliqui gossipion vocant, plures xylon, et ideo lina inde facta xylina.'

[6] Ibid.

perfectly surprising to those who are not aware that the Rhodians preserve to this day, in the Temple of Minerva, the remains of a linen corslet presented to them by Amasis, king of Egypt, whose threads are composed each of 365 fibres; and in proof of the truth of this, Mutianus, who was thrice consul, lately affirmed at Rome that he had examined it; and the reason of so few fragments remaining was attributable to the curiosity of those who had frequently subjected it to the same scrutiny.'

Herodotus mentions this corslet,[1] and another, presented by Amasis to the Lacedæmonians, which had been carried off by the Samians: 'it was of linen, ornamented with numerous figures or animals, worked in gold[2] and cotton. Each thread of the corslet was worthy of admiration. For, though very fine, every one was composed of 360 other threads, all distinct; the quality being similar to that dedicated to Minerva at Lindus by the same monarch.'

Many of the Egyptian stuffs presented various patterns worked in colours by the loom, independent of those produced by the dyeing or printing process, and so richly composed, that they vied with cloths embroidered with the needle.[3] The art of embroidery[4] was commonly practised in Egypt. We find that the Hebrews, on leaving the country, took advantage of the knowledge they had there acquired to make a rich 'hanging for the door of the tent, of blue, and purple, and scarlet, and fine twined linen, wrought with needlework.'[5] A coat of fine linen was embroidered for Aaron; and his girdle was 'of fine twined linen, and blue, and purple, and scarlet, of needlework.'[6]

The gold thread used for these purposes is supposed to have been beaten out with the hammer,[7] and afterwards rounded; and even the delicate net made by Vulcan, which was so fine that the gods themselves were unable to see it, is represented to have been forged on his anvil with the hammer.[8] Pliny mentions cloth woven with gold threads, sometimes entirely of those materials, without any woollen or linen ground, as were the gar-

[1] Herodot. ii. 182, and iii. 47.
[2] Conf. Exod. xxxix. 3.
[3] Martial, xiv. Epigr. 50.
[4] Ezekiel xxvii. 7: 'Fine linen with broidered work from Egypt.'
[5] Exod. xxvi. 36, xxvii. 16, xxxvi. 37, and xxxviii. 18.
[6] Exod. xxviii. 39, and xxxix. 29.
[7] Conf. Exod. xxxix. 3: 'And they did beat the gold into thin plates, and cut it into wires, to work it in the blue, and in the purple, and in the scarlet, and in the fine linen.'
[8] Hom. Od. Θ, 274.

ment of Agrippina,[1] the tunic of Heliogabalus,[2] and that worn by Tarquinius Priscus, mentioned by Verrius.[3]

'Coloured dresses,' says Pliny,[4] 'were known in the time of Homer, from which the robes of triumph were borrowed; and from the Phrygians having been the first to devise the method of giving the same effect with the needle, they have been called *Phrygiones*. But to weave cloth with gold thread was the invention of an Asiatic king, Attalus,[5] from whom the name Attalic was derived; and the Babylonians were most noted for their skill in weaving cloths of various colours.'

The question still remains undecided respecting the time when silver thread came into use; and as no mention of silver stuffs occurs in the writings of ancient authors, it has been supposed that its introduction was of late date. Silver wire, however, was already known in Egypt at the remote epoch of the 18th Dynasty, as is proved by being found at Thebes of the time of the third Thothmes; nor is there any reason to suppose it was then a novel invention, and it was probably known and used as early as gold wire, which we find attached to rings bearing the date of Usertesen the First.

This wire is supposed not to have been drawn, like our own, through holes in metal plates, but to have been beaten out, and rounded with the file; but the appearance of some found at Thebes almost justifies the conclusion that a mode of drawing it was not unknown to them; and the omission of every representation of the process in the paintings cannot be adduced as an argument against it, since they have also failed to introduce the casting of metals, and various other arts, with which they were undoubtedly acquainted.[6]

It is reasonable to suppose that wire-drawing was first attempted with the most ductile metals, that gold and silver were first used, and brass and iron at a much later period; and this is further argued by the probability of wire having been originally employed for ornamental purposes. Gold thread and wire were always made entirely of that metal, even to the time of the later Roman emperors;[7] nor are there any instances of flattened wire

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[1] Plin. xxxiii. 3.
[2] Lamprid. Vit. Heliog. c. 23.
[3] Plin. *loc. cit.* [4] Ibid. viii. 48.
[5] Attalus, king of Pergamus.
[6] In the drawings of the Hay Collection in the British Museum, the casting of metals is represented in the tomb of Rekh-mara, at the time of Thothmes III. The hieroglyph of a man melting gold by blowing through a blow-pipe appears as early as the 12th Dynasty.—S. B.
[7] Probably till the reign of Aurelian.

wound round silk or linen threads, or of silver or other wire gilt, in the ruins of Herculaneum and Pompeii. That the Egyptians had arrived at great perfection in the art of making the thread is evident, from its being sufficiently fine for weaving into cloth, and for embroidery; and the exceeding delicacy of the linen corslet of Amasis,[1] on which numerous figures of animals were worked in gold, required a proportionate degree of fineness in the gold thread used for the purpose.

The coloured dresses represented in the Egyptian paintings, worn by women of rank and by the deities, much resemble our modern chintzes in the style of their patterns, though it is probable that they were generally of linen instead of calico; some were probably worked with the needle,[2] and others woven with gold threads.

I have already observed that the Egyptians possessed a knowledge of the effect of acids on colour, and submitted the cloth they dyed to one of the same processes adopted in our modern manufactories; as is plainly pointed out by Pliny in the following passage:[3]—'Pingunt et vestes in Ægypto inter pauca mirabili genere, candida vela postquam attrivere inlinentes non coloribus, sed colorem sorbentibus medicamentis. Hoc cum fecere, non adparet in velis: sed in cortinam pigmenti ferventis mersa, post momentum extrahuntur picta. Mirumque, cum sit unus in cortina colos, ex illo alius atque alius fit in veste, accipientis medicamenti qualitate mutatus, nec postea ablui potest: ita cortina non dubie confusura colores, si pictos acciperet.'—'Moreover in Egypt they stain cloths in a wonderful manner. They take them in their original state, quite white, and imbue them, not with a dye, but with certain drugs which have the power of absorbing and taking colour. When this is done, there is still no appearance of change in the cloths; but so soon as they are dipped into a bath of the pigment (which has been prepared for the purpose), they are taken out properly coloured. The singular thing is, that though the bath contains only one colour, several hues are imparted to the piece, these changes depending on the nature of the drug employed: nor can the colour be afterwards washed off; and surely if the bath had many colours in it, they must have presented a confused appearance on the cloth.'

From this it is evident that the cloth was prepared before steeping; the instantaneous effect he mentions could only be

[1] Herod. iii. 47. [2] Lucan, Phars. x. 141. [3] Plin. xxxv. 11.

produced by the powerful agency of mordants; and they not only used them to make the cloth take the colour equally, but also to change the hues.

Whether the Egyptians really understood the principle on which the salts and acids of the mordants acted, or calculated their effects solely from the experience they had acquired, it is difficult to decide. They had long been used in Europe before their chemical agency was properly explained; and when the term *mordant* was first applied by the French dyers, they imagined 'that the intention of passing the substances which were to be dyed through certain saline liquors, was to corrode something that opposed the entering of the colouring principle, and to enlarge the pores of the substances' (the effect of acids in changing the hues being a later discovery). We cannot therefore positively prove that the Egyptians had a knowledge of chemistry, though from their long experience, and from their skill in the employment of the metallic oxides, we may find strong reasons to infer it: for if at first ignorant of the reason of such changes, it is probable that in process of time they were led to investigate the causes by which they were effected.

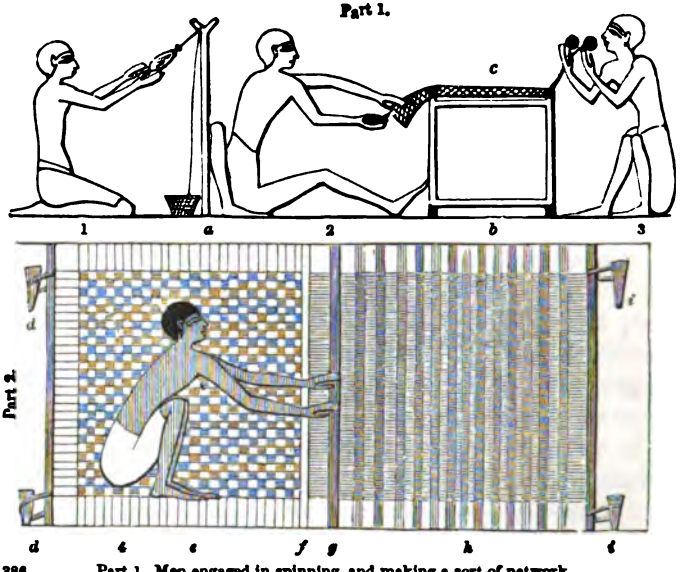
Many discoveries, and even inventions, are more the effect of chance than of studious reflection, and the principle is often the last to be understood. In discoveries this is generally the case, in inventions frequently. But when men have observed, from long practice, a fixed and undeviating result, their curiosity naturally becomes excited; the thirst for knowledge, and above all the desire of benefiting by the discovery, prompt them to scrutinise the causes to which they are so much indebted; and few people who have made any advance in the arts of civilised life, long remain ignorant of the means of improving their knowledge.

We may therefore suppose some general notions of chemistry, or at least of chemical agency, were known to the Egyptians; and the beautiful colours they obtained from copper, the composition of various metals, and their knowledge of the effects produced on different substances by the salts of the earth, tend to confirm this opinion.

The Egyptian yarn seems all to have been spun with the hand, and the spindle is seen in all the pictures representing the manufacture of cloth. Spinning was principally the occupation of women;[1] but men also used the spindle, and were engaged in

[1] Woodcut No. 110, vol. i. p. 317.

the loom; though not, as Herodotus[1] would lead us to suppose, to the exclusion of women, who, he pretends, undertook the duties of men in other countries, 'by going to market, and engaging in business, while the men, shut up in the house, worked at the loom.' Men, to this day, are employed in making cloth, in Egypt and in other countries, but it cannot be said that they have relinquished their habits for those of women; and we find from the paintings executed by the Egyptians themselves, far



No. 386. Part 1. Men engaged in spinning, and making a sort of network.
2. The horizontal loom, or perhaps mat-making, as in Spain.
Beni-Hassan.

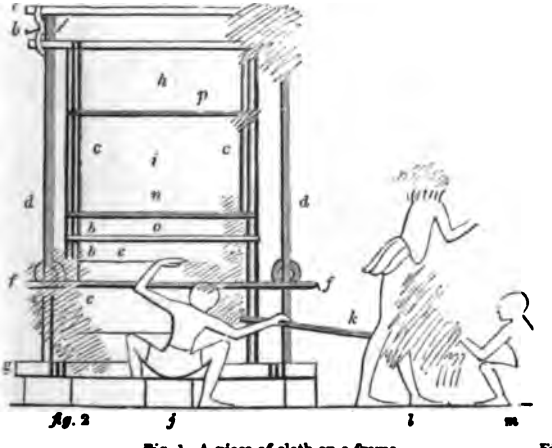
more authentic and credible than the casual remarks of a Greek, that both men and women were employed in manufacturing cloth.

'Other nations,' continues the historian, 'make cloth by pushing the woof upwards, the Egyptians, on the contrary, press it down;' and this is confirmed by the paintings[2] which represent the process of making cloth; but at Thebes, a man who is engaged in making a piece of cloth with a coloured border or selvage, appears to push the woof upwards, the cloth being fixed above him to the upper part of the frame. They had also the horizontal loom, which occurs at Beni-Hassan and other places.

[1] Herodot. ii. 35. Sophocles, Œdip. Col. v. 352, makes the same remark.
[2] In woodcut No. 110, *fig.* 2, vol. i. p. 317.

In the hieroglyphics over persons employed with the spindle, it is remarkable that the word *saht*, which in Coptic signifies 'to twist,' constantly occurs. The spindles were generally small, being about one foot three inches in length, and several have been found at Thebes, and are now preserved in the museums of

fig. 1.



No. 387. *Fig.* 1. A piece of cloth on a frame. 2. A loom. *Ellethyia. Thebes.*

k is a shuttle, not thrown, but put in with the hand. It had a book at each end. Woodcut No. 110, *fig.* 2.

Europe.[1] They were generally of wood, and, in order to increase their impetus in turning, the circular head was occasionally of gypsum, or composition: some, however, were of a light plaited work, made of rushes, or palm leaves, stained of various colours and furnished with a loop of the same materials, for securing the twine after it was wound.[2]

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[1] One of those in the British Museum, which was found at Thebes, had some of the linen thread with it. Woodcut No. 388, *fig.* 2.

[2] Woodcut No. 388, *fig.* 5. Another of wood, *fig.* 6.

Besides the use of the spindle,[1] and the form of the loom, we find the two principal purposes to which flax was applied represented in the paintings of the tombs: and at Beni-Hassan

No. 388. Spindles. *British and Berlin Museums.*

Fig. 1 is a sort of cane split at the top to give it a globular shape.
2 has the head of gypsum.
3, entirely of wood.
4, of plaited or basket work.
5, the loop to put over the twine.
6, a ring of wood for securing the twine.

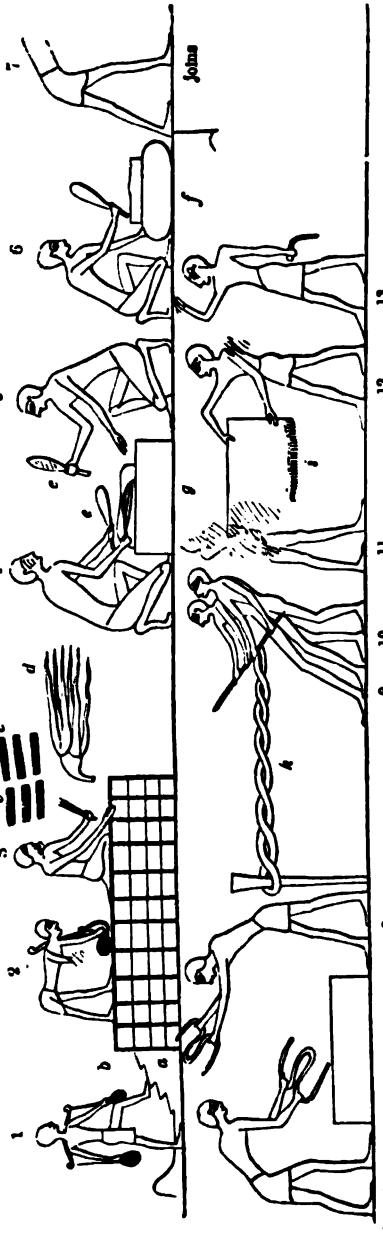
the mode of cultivating the plant, in the same square beds now met with throughout Egypt (much resembling our salt-pans), the process of beating the stalks and making them into ropes, and the manufacture of a piece of cloth, are distinctly pointed out.[2]

It is, however, possible that the part of the picture where men are represented pouring water from earthen pots, may refer to the process of steeping the stalks of the plant, after they were cut; the square spaces would then indicate the different pits in

[1] The ordinary distaff does not occur in these subjects, but we may conclude they had it; and Homer mentions one of gold, given to Helen by 'Alcandra, the wife of Polybus,' who lived in Egyptian Thebes. (Od. Δ, 131.)

[2] Woodcut No. 389.

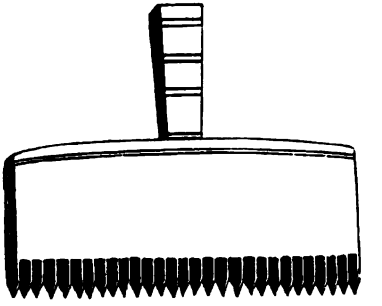
which they were immersed, containing some less, some more water, according to the state in which they were required; and this is rendered more probable by the flight of steps, for ascending to


John 7.
No. 389.
Beni-Hassan.
Preparing the flax, beating it, and making it into twine and cloth.
a, steps leading up to the top of the pits, b b, where the flax was steeped.
c c, the flax taken by fig. 3 to dry, previous to beating.
d, the stalks fresh cut.
Figs. 1 brings water in earthen pots.
Figs. 4 and 5 are engaged in beating the flax with mallets, e e.
7 and 8, striking it, after it is made into yarn, on a stone, g.
Figs. 9 and 10, twisting the yarn into a rope.
11 and 12 show that a piece of cloth, i, has been made of the yarn.
13, a superintendent.

the top of the raised sides of the pits, which would not have been introduced if the level ground were intended.

The steeping, and the subsequent process of beating the stalks with mallets, illustrate the following passage of Pliny[1] upon the same subject:—'The stalks themselves are immersed in water, warmed by the heat of the sun, and are kept down by weights placed upon them; for nothing is lighter than flax. The membrane, or rind, becoming loose, is a sign of their being sufficiently macerated. They are then taken out, and repeatedly turned over in the sun, until perfectly dried; and afterwards beaten by mallets on stone slabs. That which is nearest the rind is called *stupa*, "tow," inferior to the inner fibres, and fit only for the wicks of lamps. It is combed out with iron hooks, until all the rind is removed. The inner part is of a whiter and finer quality. Men are not ashamed to prepare it. . . . After it is made into yarn, it is polished by striking it on a hard stone moistened with water; and when woven into cloth, it is again beaten with clubs, being always improved in proportion as it is beaten.'

They also parted and cleansed the fibres of the flax with a sort of comb, probably answering to the iron hooks mentioned by Pliny; two of which, found with some tow at Thebes, are



No. 390. Wooden comb found with some tow. *Berlin Museum.*

preserved in the Berlin Museum; one having twenty-nine, the other forty-six, teeth.[2]

The border of some of their cloths consists of long fringes, formed by the projecting threads of the warp, twisted together, and tied at the end in one or more knots, to prevent their unravelling,—'precisely,' as Mr. Thompson observes, 'like the

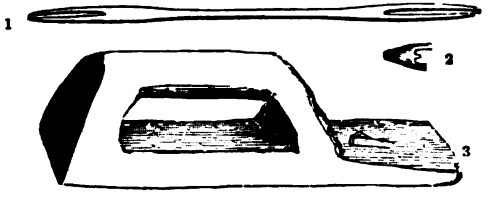
[1] Plin. xix. 1.

[2] Woodcut No. 390.

silk shawls of the present day;' and specimens of the same borders, in pieces of cloth found in the tombs, may be seen in the British Museum and other collections.[1]

The sculptures, as well as the cloths which have been discovered, perfectly bear out Herodotus in his statement that they had the custom of leaving a fringe to their pieces of linen,[2] which, when the dresses were made up, formed a border round the legs; but they do not appear to have been universally worn. This kind of dress he calls *calasiris*. When the fringe was wanting, the border was hemmed, which had the same effect of preventing the unravelling of the cloth. The Jews wore a similar kind of fringed dress, and Moses commanded the children of Israel to 'make them fringes in the borders of their garments, . . . and . . . put upon the fringe of the borders a riband of blue.'[3]

Besides the process of making cloth, that of smoothing, or calendering, is represented in the paintings; which appears to have been done by means of wooden rods, passed to and fro over the surface: but from the appearance of some of the fine linen found in the tombs, we may conjecture that much greater pressure was sometimes used for this purpose, and such as could only be applied by a press, or cylinders of metal.



No. 391. *Fig.* 1. Netting needle of wood, in Mr. Salt's Collection.
2. Part of another of bronze, of later date, found by me at Berenice.
3. Wooden plane for smoothing or pressing cloth. *From Thebes.*

For smoothing linen after washing, a wooden substitute for what we call an *iron* was used by the Egyptian washerwomen, some of which have been found at Thebes, six inches in length, made of *athul* or tamarisk wood.[4]

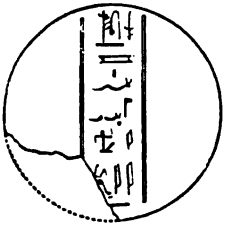
I have had occasion to observe that the Egyptians had carpets, which, according to Diodorus,[5] were spread for the sacred animals, and are noticed by Homer[6] as a very early invention;

[1] Woodcut No. 383, *fig.* 4. Deut. xxii. 12.
[2] Herodot. ii. 81.
[3] Numbers xv. 38.
[4] Woodcut No. 391, *fig.* 3.
[5] Diodor. i. 34.
[6] Hom. Od. Δ, 124, and called *tapeta*, the modern name of a carpet.

they were of wool,[1] but of their quality we are unable to form any opinion, the fragments discovered in the tombs being very imperfectly preserved. Some portions of woollen work have been found at Thebes, which presented the appearance of a carpet; and a small rug was brought to England, and was in the possession of Mr. Hay, whose valuable collection of drawings from Thebes and other parts of Egypt I have already noticed.

This rug is eleven inches long by nine broad. It is made like many carpets of the present day, with woollen threads on linen string. In the centre is the figure of a boy in white, with a goose above it, the hieroglyphic of 'child,' upon a green ground; around which is a border composed of red and blue lines; the remainder is a ground of yellow, with four white figures above and below, and one at each side, with blue outlines and red ornaments; and the outer border is made up of red, white, and blue lines, with a fancy device projecting from it, with a triangular summit, which extends entirely round the edge of the carpet. Its date is uncertain; but from the child, the combination of the colours, and the ornament of the border, I am inclined to think it really Egyptian.[2]

I have also been informed by Lord Prudhoe, that in the Turin Museum he met with 'some specimens of worked worsted upon linen, in which the linen threads of the weft had been picked out, and the coloured worsted sewed on the warp.'



Wooden reel with thread, inscribed with the name of Ai, royal scribe and divine father, probably the heretic king Ai, of the 18th Dynasty. No. 392. *Leyden Museum.*

[The Egyptian thread was thin and fine, and when ready for use was wound round small cylindrical wheels grooved in the centre. These reels were made of wood, porcelain, and other materials, but wood was generally preferred for the purpose as lighter and more useful. Sometimes these reels had hieroglyphic inscriptions engraved upon them, and it appears from one in the Museum of Leyden that the names of their possessors were men as well as women—either that they were the property of their households, or else that they actually used them.]—S. B.

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[1] As in Homer, *loc. cit.*

[2] It is not of the Pharaonic, but of the Greek or Roman period.—S. B.

I have noticed the use of flax for making ropes, string, and various kinds of twine; for large ropes, however, of ordinary quality, and for common purposes, the *leef*, or fibres of the date-tree, were employed, as at the present day; and many specimens of these durable materials have been found in the excavations of Upper and Lower Egypt.

In a tomb at Thebes, of the time of Thothmes III., is represented the process of twisting thongs of leather, which, as it is probably the same as that adopted in rope-making, may be properly introduced here.

The ends of four thongs were inserted and fastened into a hollow tube, from the side of which a bar projected, surmounted by a heavy metal ball; and the man who twisted them held the tube in his right hand, whirling it round, as he walked backwards, by means of the impetus given by the ball. A band attached to a ring at the other end of the tube went round his body, in order to support it and give it a free action, and the ring turned upon a swivel, to prevent the band itself from twisting.

At the other extremity of the walk, a man seated on the ground, or on a low three-legged stool, let out the separate thongs, and kept them from becoming entangled. Behind him sat another, who, with the usual semicircular knife, cut the skin into strips, as he turned it round; showing that what we term the circular cut was known to the ancient Egyptians at this early period, and that they had already adopted this mode of obtaining the longest thongs from a single piece of leather.[1] When finished, the twisted thongs were wound round a hollow centre, through which the end was passed, and repeatedly bound over the concentric coils in the same manner as ropes.

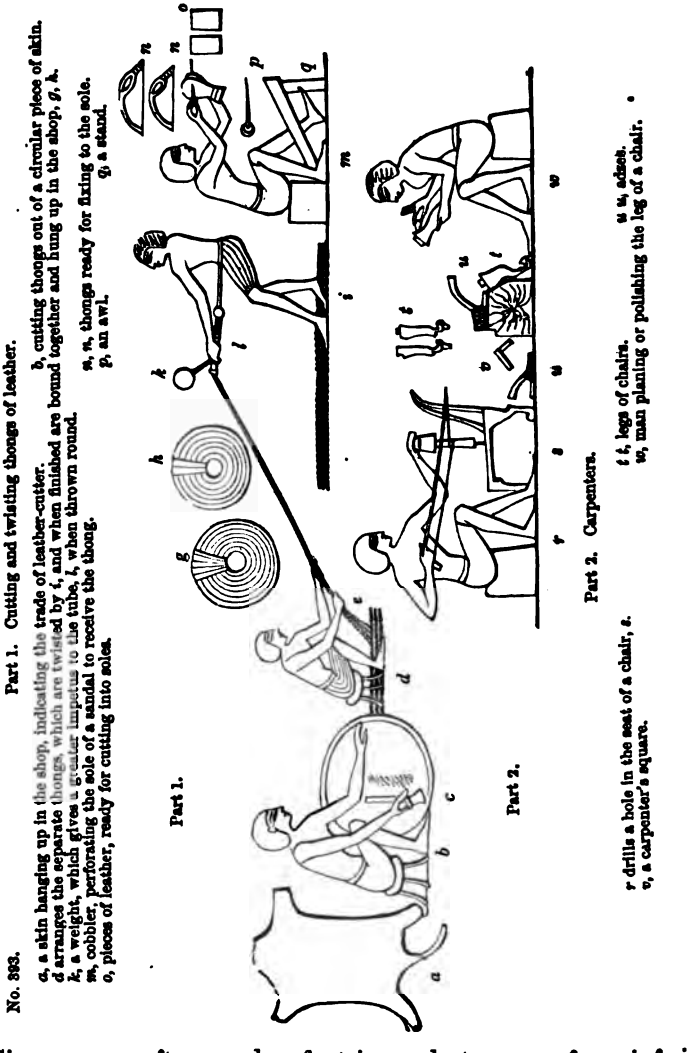
Some, indeed, have supposed the present subject to represent rope-making; but the presence of the skin on the left, and the shoemakers on the right, forming a continuation of the picture, sufficiently prove that they are engaged in preparing leathern thongs for sandals, and other similar purposes.

Their nets were made of flax-string,[2] both for fishing and fowling: and portions of them have been discovered at Thebes, and are preserved in our European museums. The netting

[1] This calls to mind the fable of Dido's purchasing as much land in Africa as could be covered by a bull's hide, upon which she built Byrsa, the origin of Carthage. (Virgil, Æn. i. 368.)

[2] Conf. Isaiah xix. 9: 'They that work in fine flax, and they that weave networks.' Plin. xix. 1; and *suprà*, p. 165.

needles[1] were of wood, very like our own, split at each end, and between ten and eleven inches in length, and others were of bronze, with the point closed.


No. 393.
Part 1. Cutting and twisting thongs of leather.
a, a skin hanging up in the shop, indicating the trade of leather-cutter.
b, cutting thongs out of a circular piece of skin.
d arranges the separate thongs, which are twisted by i, and when finished are bound together and hung up in the shop, g, k.
k, a weight, which gives a greater impetus to the tube, l, when thrown round.
m, n, thongs ready for fixing to the sole.
m, cobbler, perforating the sole of a sandal to receive the thong.
p, an awl.
q, a stand.
o, pieces of leather, ready for cutting into soles.
Part 1.
Part 2.
Part 2. Carpenters.
r drills a hole in the seat of a chair, s.
s, a carpenter's square.
t t, legs of chair.
u u, adzes.
w, man planing or polishing the leg of a chair.

Sieves were often made of string; but some of an inferior quality, and for coarse work, were constructed of small thin rushes or reeds[2] (very similar to those used by the Egyptians for

[1] Woodcut No. 391, *figs.* 1 and 2.

[2] [Pliny says, the Egyptians made sieves of the stalks of papyrus and rushes, the Spaniards of string, and the Gauls of horsehair (xviii. 11).—G. W.]

writing, and frequently found in the tablets of the scribes); a specimen of which kind of sieve is preserved in the Paris Museum. The paintings also represent them made of the same materials; and indeed it is probable that the first they used were all of this humble quality, since the hieroglyphic indicating a sieve is evidently borrowed from them.

The Egyptians were not less famed for their manufacture of paper than for the delicate texture of their linen. The plant from which it was made, the *Cyperus papyrus*[1] of modern botanists, mostly grew in Lower Egypt, in marshy land, or in shallow brooks[2] and ponds formed by the inundation of the Nile, where they bestowed much pains on its cultivation.

The right of growing and selling it belonged, as I have already observed, to the Government, who made a great profit by its monopoly; and though we frequently find mention of the use of the byblus or papyrus, for constructing canoes or rude punts, for making baskets, parts of sandals, sails, and for numerous other common purposes, it is evident that we are to understand, in these instances, some other species of the numerous family of *Cyperus;* which, too, is unequivocally shown by Strabo, when he distinguishes the ordinary from 'the hieratic byblus.'[3]

The papyrus, or 'byblus hieraticus' of the geographer, our *Cyperus papyrus*, was particularly cultivated in the Sebennytic nome:[4] other parts of the Delta also produced it, and probably even some districts in Upper Egypt. The paper made from it differed in quality; being dependent upon the growth of the plant, and the part of the stalk whence it was taken; and we find many of the papyri which have been preserved vary greatly in their texture and appearance. They are generally fragile and difficult to unroll, until rendered pliant by gradual exposure to steam, or the damp of our climates; and some are so brittle that they appear to have been dried by artificial means.

We are, however, less surprised at the effect of the parched climate of Upper Egypt, when we consider the length of time they have been kept beyond the reach of moisture, and observe that our drawing paper, after a very few years, becomes so dry

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[1] Or the *Cyperus antiquorum*, the modern *Berd*. Its ancient name was *pu apu*, 'the *apu*,' whence papyrus. The word *tuft* appears to have been applied to papyrus. When made up or manufactured, it was called *t'ama*.—S. B.

[2] Isaiah xix. 7: 'The paper reeds by the brooks, by the mouth of the brooks.'

[3] The papyrus was called by the Greeks *bublos*, the Latin *byblus*.

[4] Plin. xiii. 11.

in that country that it is too brittle to fold without breaking. Indeed, those papyri which have not been exposed to the same heat, being preserved in the less arid climate of Lower Egypt, still preserve their pliability; and a remarkable proof of this is shown in one brought by me from Memphis, which may be bent, and even twisted in any way, without breaking, or without being more injured than a piece of common paper. The hieroglyphics, from their style, show it to be of an ancient Pharaonic age, and, what is remarkable, they present the name of the city where the papyrus was found, Menofre, or Memphis.

The mode of making papyri was this:—The interior of the stalks of the plant, after the rind had been removed, was cut into thin slices in the direction of their length, and these being laid on a flat board, in succession, similar slices were placed over them at right angles;[1] and their surfaces being cemented together by a sort of glue, and subjected to a proper degree of pressure and well dried, the papyrus was completed. The length of the slices depended of course on the breadth of the intended sheet, as that of the sheet on the number of slices placed in succession beside each other; so that though the breadth was limited, the papyrus might be extended to an indefinite length.

The papyrus is now no longer used, paper from linen rags and other materials having superseded it; but some few individuals, following the example of the Cavaliere Saverio Landolina Nava, of Syracuse, continue to make it; and sheets from the plant, which still grows in the small rivulet formed by the fountain of Cyane, near Syracuse, are offered to travellers as curious specimens of an obsolete manufacture. I have seen some of these small sheets of papyrus; the manner of placing the pieces is the same as that practised in former times; but the quality of the paper is very inferior to that of ancient Egypt, owing either to the preparation of the slices of the stalk before they are glued together, or to the coarser texture of the plant itself, certain spots occurring here and there throughout the surface, which are never seen on those discovered in the Egyptian tombs.

Pliny thus describes[2] the plant and the mode of making paper: 'The papyrus grows in the marsh-lands of Egypt, or in

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[1] The slices which were placed longways were called by the Romans *stamen*, the others crossing them *subtemen*, like the warp and the woof in cloth.

[2] Plin. xiii. 11.

the stagnant pools left inland by the Nile, after it has returned to its bed, which have not more than two cubits in depth. The root of the plant is the thickness of a man's arm; it has a triangular stalk, growing not higher than ten cubits (fifteen feet), and decreasing in breadth towards the summit, which is crowned as with a thyrsus, containing no seeds, and of no use except to deck the statues of the gods. They employ the roots as firewood, and for making various utensils. They even construct small boats of the plant; and out of the rind, sails, mats, clothes, bedding, and ropes: they eat it either crude or cooked,[1] swallowing only the juice; and when they manufacture paper from it, they divide the stem, by means of a kind of needle, into thin plates or laminæ, each of which is as large as the plant will admit. . . . .

'All the paper is woven upon a table, and is continually moistened with Nile water, which, being thick and slimy, furnishes an effectual species of glue.[2] In the first place, they form upon a table, perfectly horizontal, a layer the whole length of the papyrus, which is crossed by another placed transversely, and afterwards enclosed within a press. The different sheets are then hung in a situation exposed to the sun in order to dry, and the process is finally completed by joining them together, beginning with the best. There are seldom more than twenty[3] slips, or stripes, produced from one stem of the plant.[4]

'Different kinds of broad paper vary in breadth. The best is thirteen digits broad; the hieratic only eleven; the Fannian[5] ten, and the amphitheatric nine. The Saitic is still narrower, being only the breadth of the mallet; and the paper used for business is only six digits broad. Besides the breadth, the fineness, thickness, whiteness, and smoothness are particularly regarded; . . . . when it is coarse, it is polished with a boar's tooth, or a shell; but then the writing is more readily effaced, as it does not take the ink so well.'[6]

Pliny is greatly in error when he supposes that the papyrus

[1] Diod. i. 80.

[2] It is scarcely necessary to correct this misconception of Pliny, or to suggest the necessity of something more tenacious than Nile water.

[3] Some read *vicina*, not *viginti*.

[4] On the examination of papyri, there appears to be some doubt how the material was prepared, and it is possible that it may have been cut in a continuous circular manner, so as to make one large sheet from a single stem, like the mode in which the so-called rice paper, the pith of the *Aralia papyrifera*, is produced by the Chinese.—S. B.

[5] So called from Fannius, who had a manufactory at Rome for preparing paper.

[6] Plin. xiii. 12, where he makes other observations on the quality of paper.

was not used for making paper before the time of Alexander the Great, since we meet with papyri of the most remote Pharaonic periods; and the same mode of writing on them is shown from the sculptures to have been common in the age of Suphis, or Cheops, the builder of the Great Pyramid, more than 2000 years before our era. [The breadth of the papyrus varied at different times, the oldest, that of the 5th Dynasty, being six inches in width; at the time of the 12th Dynasty it is the same, and in the 18th generally about thirteen inches; under the 19th line it was nine and eleven inches; and at the time of the 20th as broad as fourteen and a half inches. The demotic contracts under the Ptolemies are about eleven inches, while the Greek papyri of the Roman period are from twelve and a half to fourteen inches wide. The colour varies according to its antiquity, the oldest papyrus being the darkest; but some papyri are much lighter, and of finer and more silky quality, even at a comparatively early period. At the time of the 26th Dynasty some papyri are of a remarkably white colour.—S. B.]

It is uncertain until what period paper made of the papyrus continued in general use; but there is evidence of its having been occasionally employed to the end of the seventh century, when it was superseded by parchment. All public documents, under Charlemagne and his dynasty, were written on this last, and the papyrus was then entirely given up.[1]

Parchment, indeed, had been invented long before, and was used for writing, as early as the year 250 before our era, by Eumenes, king of Pergamus, who being desirous of collecting a library which should vie with that of Alexandria, and being prevented by the jealousy of the Ptolemies from obtaining a sufficient quantity of papyrus, had recourse to this substitute; and its invention at Pergamus claimed, and secured to it, the lasting name of Pergamena.[2] It was made of the skins of sheep and calves; but to the former the name of parchment is more correctly applied, as to the latter that of vellum.[3]

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[1] The Bull of Pope John VIII., A.D. 876, makes its use as late as the ninth century, and it was used in Italy till the twelfth; the last dated document in it being the Bull of Pope Paschal II. about A.D. 1100.—S. B.

[2] Called also *membrana* by the Romans. It appears from the inscriptions that leather came into use long before papyrus; documents written upon it in the time of Cheops of the 4th, and Apappus of the 5th Dynasty, being mentioned in some papyri, and entirely copied on others. An exceptional ritual in the British Museum (Salt, 256) is of white leather, a kind of vellum or parchment, and is many centuries older than the reign of Eumenes.—S. B.

[3] From *vellus*, 'a skin,' or *vitulinum*, 'of calf.'

The monopoly of the papyrus in Egypt so increased the price of the commodity, that persons in humble life could not afford to purchase it for ordinary purposes; few documents,[1] therefore, are met with written on papyrus, except funeral rituals, the sales of estates, and official papers, which were absolutely required; and so valuable was it, that they frequently obliterated the old writing, and inscribed another document on the same sheet.

For common purposes, pieces of broken pottery, stone, board, and leather were used; an order to visit some monument, a soldier's leave of absence, accounts, and various memoranda, were often written on the fragments of an earthenware vase; an artist sketched a picture, which he was about to introduce in a temple or a sepulchre, on a large flat slab of limestone, or on a wooden panel prepared with a thin coating of stucco; and even parts of funeral rituals were inscribed on square pieces of stone, on stuccoed cloth, or on leather. Sometimes leather rolls were substituted for papyri, and buried in the same manner with the deceased; they are of an early period, and probably adopted in consequence of the high price of the papyrus; but few have hitherto been found at Thebes.

In the infancy of society various materials were employed for writing, as stones, bricks, tiles, plates of bronze, lead and other metals, wooden tablets,[2] the leaves and bark of trees, and the shoulder-bones of animals. Wooden tablets covered with wax were long in use among the Romans, as well as the papyrus;[3] and the inner bark of trees,[4] and pieces of linen,[5] had been previously adopted by them.

Many Eastern people still write on the leaves of trees, or on wooden tablets, and *waraka* continues to signify, in Arabic, both 'a *leaf*' and 'paper.'

The early Arabs committed their poetry and compositions to the shoulder-bones of sheep; they afterwards obtained the

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[1] Papyrus appears to have been used for all official, civil, and legal purposes; but as most of the papyri found are those made for the mummies, they are, of course, funeral. There are, however, several papyri with miscellaneous subjects, while the number of inscriptions on slices of calcareous stone and pottery, to which the Greek term *ostraka* has been conventionally applied, is comparatively small.—S. B.

[2] These wooden tablets, which are covered with a glazed composition capable of receiving ink, were used by the Egyptians long after they had papyri, and they are still common in schools at Cairo in lieu of our slates. One is represented in woodcut No. 109, *fig.* 1.

[3] Whence the word 'paper,' as in *byblus*, or *biblus*, originated the name bible or book.

[4] Called *liber*, whence the Latin name *liber*, 'a book.'

[5] Liv. iv. 7, xiii. 20: 'Linteis libris,' about the year 440 B.C.

papyrus paper from Egypt, on which the poems called *Moallaqât* were written in gold letters; and after their conquests in Asia and Africa, these people so speedily profited by and improved the inventions of the nations they had subdued, that parchment was manufactured in Syria, Arabia, and Egypt, which in colour and delicacy might vie with our modern paper. It speedily superseded the use of the papyrus, and continued to be employed until the discovery of the method of making paper from cotton and silk, called *Carta bombycina*, which is proved by Montfaucon to have been known at least as early as A.D. 1100, and is supposed to have been invented about the beginning of the ninth century. Being introduced into Spain from Syria, it was denominated *Carta damascena;* and some manuscripts on cotton paper are said to exist in the Escurial, written in the eleventh century.

It is a matter of doubt to what nation and period the invention of paper manufactured from linen ought to be ascribed. The Chinese were acquainted with the secret of making it from various vegetable substances long before it was known in Europe;[1] the perfection to which they have carried this branch of art continues to excite our admiration; and 'the librarian Casiri relates,' according to Gibbon, 'from credible testimony, that paper was first imported from China to Samarcand A.H. 30[2] (A.D. 652), and *invented*, or rather introduced, at Mecca A.H. 88 (A.D. 710).'[3]

It may, however, be questioned whether it was made from linen at that early period, and we have no positive proof of linen paper being known, even by the Saracens, prior to the eleventh century. The Moors, as might be expected, soon introduced it into Spain, and the Escurial library is said to contain manuscripts written on this kind of paper as old as the twelfth century.[4]

But paper of mixed cotton and linen, which was made at the same time, appears to have been in more general use; and linen paper continued to be rare in most European countries till the fifteenth century. That it was known in Germany as early as the year 1312, has been satisfactorily ascertained by existing documents; and a letter on linen paper, written from Germany to Hugh Despencer about the year 1315, is preserved in the

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[1] A.D. 95.—S. B.

[2] Some raise it to A.D. 704, but no Arabic paper manuscript older than A.D. 950 is known.—S. B.

[3] Gibbon, vol. ix. c. 51, p. 379.

[4] Some doubt the existence of any MS. on linen paper before the year 1270; but an Arabic version of the Aphorisms of Hippocrates, in the Escurial, dates from the beginning of the thirteenth century.

Chapter-house at Westminster; which, even to the water-mark, resembles that made at the present day.

It was not till the close of the sixteenth century that paper was manufactured in England. The first was merely of a coarse brown quality, very similar to that of the modern Arabs, whose skill in this, as in many arts and sciences, has been transferred to people once scarcely known to them, and then greatly their inferiors; and writing or printing paper was not made in London before 1690;[1] France and Holland having, till that time, supplied us with an annual importation to the amount of nearly 100,000 pounds.

The tanning and preparation of leather was also a branch of art in which the Egyptians evinced considerable skill; the leather-cutters, as I have already observed, constituted one of the principal subdivisions of the third caste; and a district of the city was exclusively appropriated to them in the Libyan part of Thebes.

Leather is little capable of resisting the action of damp, the salts of the earth, or excessive dryness, so that we cannot reasonably expect to find it sufficiently well preserved to enable us to judge of its quality; but the fineness of that employed for making the straps placed across the bodies of mummies discovered at Thebes, and the beauty of the figures stamped upon them,[2] satisfactorily prove the skill of 'the leather-cutters' and the antiquity of embossing; some of these bearing the names of kings who ruled Egypt about the period of the Exodus, or 3300 years ago.

Many of the occupations of their trade are portrayed on the painted walls of the tombs at Thebes. They made shoes, sandals, the coverings and seats of chairs or sofas, bow-cases, and most of the ornamental furniture of the chariot; harps were also adorned with coloured leather, and shields and numerous other things were covered with skin prepared in various ways. They also made skins for carrying water, wine, and other liquids; and

[1] [But Queen Elizabeth is said to have knighted Spelman for having set up the first paper-mill in England; and Shakespeare makes Jack Cade say to Lord Say (1450), 'Whereas before our forefathers had no other book but the score and the tally, thou hast caused printing to be used, and contrary to the king, his crown and dignity, thou hast built a paper-mill:' but Shakespeare is not quite an authority for this, or the paper-mill.—G. W.]

[2] These are the stamped ends of the cross-straps of the mummies of the time of the 20th Dynasty, the oldest known being that of Rameses XIII. (Osburn, mummy at Leeds, pl. 2.) These embossed bands continued in use during the subsequent dynasties, or till about 525 B.C., and after that were disused.—S. B.

the custom of coating them within with a resinous substance[1] was the origin, as I have already observed, of that acquired taste, which led the Egyptians to imitate the flavour it imparted to wine, even in their earthen amphoræ.

Part of the process of curing the skins is introduced in the sculptures; and that of dyeing them is mentioned in the Bible,[2] being doubtless borrowed by the Jews from Egypt. In one instance a man is represented dipping the hide[3] into a vase, probably containing water, in which it was suffered to soak, preparatory to the lime being applied to remove the hair—a process very similar to that adopted at the present day in Egypt and other countries. The Arabs prefer the acrid juice of a plant growing in the desert, for the purpose, as its effect is still more rapid, and as it has the advantage of making the skin better and more durable.

This plant is the *Periploca secamone;* its stalks contain a white milky juice, which exudes from it when bruised, and which is so acrid as to be highly injurious to the eye or to the wounded skin. It supports itself by winding around every neighbouring shrub, and its not ungraceful stalks appear to have been occasionally used by the ancient Egyptians for the same ornamental purpose as the ivy, in forming festoons. But there is no evidence of its having been employed by them in curing skins, though they seem to have been well acquainted with the properties of the plants which grew in the deserts, as well as in the valley of the Nile; and however we might be inclined to suppose that, in the sculptures of Thebes representing the occupations of curriers, they are pounding something of the kind for this purpose, the absence of every indication of the contents of the vase or mortar leaves it undecided if it be the *periploca*, or lime, salt, or other substance.

According to the Arabs, the method of preparing skins with the *periploca*, or *Ghulga*, is as follows: 'The skins are first put into flour and salt for three days, and are cleansed of all the fat and the impurities of the inside. The stalks of the plant being pounded between large stones, are then put into water, applied

[1] Also scabbards of swords. A leather cap, No. 2564, and apron, No. 2567, are in the collections of the British Museum. Papyri containing documents or letters were sometimes transmitted in leather cases, and bags of leather were used by workmen for holding tools or instruments.—S. B.

[2] Exod. xxv. 5: 'And rams' skins dyed red.'

[3] The Egyptian word for leather is *tehar;* the hide or unprepared skin was called *anem*.—S. B.

to the inner side of the skin for one day; and the hair having fallen off, the skin is left to dry for two or three days, and the process is completed.'

The mode of stretching or bending leather over a form is frequently represented at Thebes; and it is curious to observe that the semicircular knife,[1] used by the ancient Egyptians between 3000 and 4000 years ago, is precisely similar to that of our modern curriers.

As in other trades, the tools they employed were neither numerous nor complex, and their means might sometimes appear inadequate, did we not see the beautiful work performed at the present day, in China, India, and other countries, where the implements are equally simple. The semicircular knife, a sort of chisel, the common awl (specimens of which have been found

No. 394. Currier holding a strap of leather with his toes, while cutting it. *Thebes.*
b b are straps tied up, and deposited in the shop.

at Thebes, similar to our own), a stone for polishing the leather, the cutting table, the bending form, the horn, and a few other utensils, were all that occurred in the shop of the shoemaker or the currier; and a prepared skin, the emblem of their trade, was suspended together with ready-made shoes and other articles, to indicate their skill and to invite a customer.

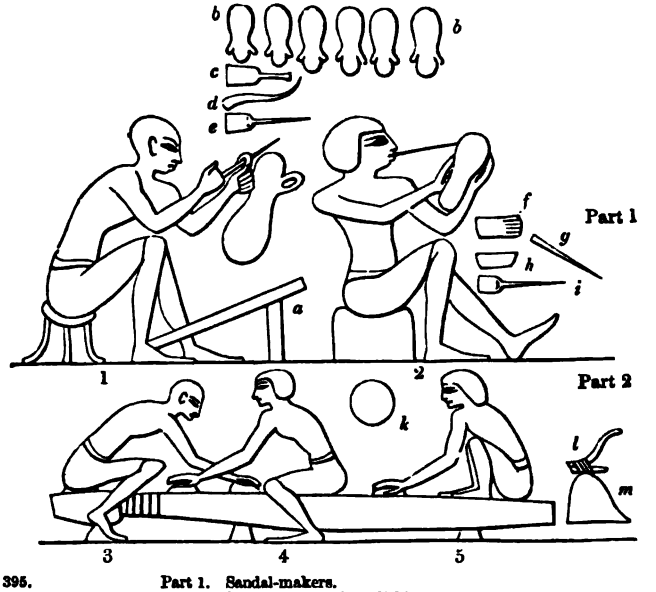
The shops of an Egyptian town were probably similar to those of Cairo,[2] and other Eastern cities: which consist of a square room, open in front, with falling or sliding shutters, to close it at night; and the goods, ranged in shelves or suspended against the walls, are exposed to the view of those who pass. In front is generally a raised seat, where the owner of the shop and his customers sit, during the long process of concluding a bargain,

[1] Woodcut No. 65, *fig. c.* It is the same as the Greek *arbelon.*

[2] Lane, 'Modern Egyptians,' vol. ii. pp. 9 and 10, woodcuts.

previous to the sale and purchase of the smallest article; and here an idle lounger frequently passes whole hours, less intent on benefiting the shopkeeper, than in amusing himself with the busy scene of the passing crowd.

Among the many curious customs introduced in the paintings and still retained in the East, is that of holding a strap of leather or other substance with the toes, which from their being always free, and unencumbered with tight shoes, retain their full power and pliability: and the singular, I may say primitive, mode of



No. 395. Part 1. Sandal-makers.
2. Men employed in polishing a column. Thebes.

Fig. 1, making a hole with an awl. *b b*, sandals hanging up in the shop.
2, tightening a thong with his teeth. *c* to *l*, various tools.

tightening a thong with the teeth, while sewing a shoe, is also portrayed in the paintings of the time of the third Thothmes.

It is probable that, as at the present day, they ate in the open front of their shops, exposed to the view of every one who passed; and to this custom Herodotus may allude, when he says, 'the Egyptians eat in the street.'[1]

In Eastern towns, no regal arms or gilded inscription proclaim the patronage[2] of 'his Majesty,' and no picture or description

[1] Herodot. ii. 35.

[2] A Turk in London once observed, 'How very changeable your king must be, if all the shops having royal arms have been successively tried by him!'

affixed to the shop announces the trade of the owner; being thought sufficiently shown by the goods exposed for sale: but this does not prevent the inconsistency, perhaps profanation, of attaching a religious sentence, or the name of the Deity, to walls which hourly witness an attempt to defraud the inexperienced customer. Nor is there any direct evidence that the ancient Egyptians affixed the name and trade of the owner of the shop, though the presence of hieroglyphics, denoting this last, together with the emblem which indicated it, may seem to argue in favour of the custom; and the absence of many individuals' names in the sculptures is readily accounted for by the fact that these scenes refer to the occupation of the whole trade, and not to any particular person.

Of all people, we may suppose Egyptian shopkeepers most likely to display the patronage received from royalty; the name of a monarch being so often introduced in the most conspicuous manner on the coffins of private individuals, and in the paintings of the tombs; many of the scarabæi they wore presenting the name of a king, and the most ordinary devices being formed to resemble a royal oval. But whether or not they had this custom, or that of affixing the name and occupation of the tradesman, it is difficult to determine; and indeed in those cities where certain districts were set apart for particular trades, the latter distinction was evidently uncalled for and superfluous.

The great consumption of leather in Egypt, and the various purposes to which skins,[1] both in the tanned and raw state, were applied, created a demand far greater than could be satisfied by the produce of the country; they, therefore, imported skins from foreign countries, and part of the tribute levied on the conquered tribes of Asia and Africa consisted of hides and the skins of wild animals, as the leopard, fox, and others; which are frequently represented in the paintings of Thebes, laid before the throne of the Egyptian monarch, together with gold, silver, ivory, rare woods, and the various productions[2] of each vanquished country.

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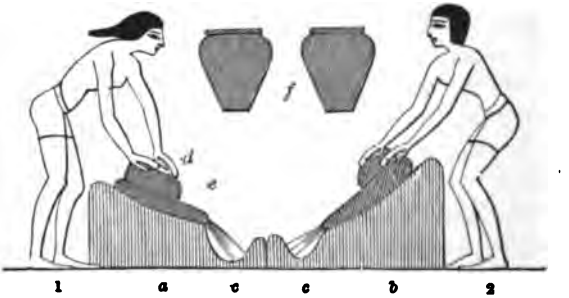
[1] Skins were considered of great value by many ancient people: the rewards in the games at Chemmis in Upper Egypt were skins, cattle and cloaks, and we find the same custom among the Greeks. (Hom. Il. X, 159; Herodot. ii. 91.)

[2] Some of these tributes put us in mind of the objects which came in Solomon's ships: 'gold, and silver, ivory, and apes, and peacocks' (1 Kings x. 22). See also Athenæus, lib. v., where he mentions the presents brought to Ptolemy Philadelphus. [The name of the peacock in Hebrew is *tokiim*, from *tokii*, a peacock, in the Tamil language of South India, whence they came. Apes, *kofm*, is also in Tamil *kap*; but it is in Egyptian *toij*, and *kaf* is the long-tailed monkey of Ethiopia. The Tamil was the language of South India before the Hindoo race inhabited it, as in the

For tanning they used the pods of the *Sont*, or Acacia (*Acacia* or *Mimosa nilotica*), the *acanthus* of Strabo and other writers, which was cultivated in many parts of Egypt, being also prized for its timber and gum; and it is probable that the bark and wood of the *Rhus oxyacanthoïdes*, a native of the desert, were employed for the same purpose.[1]

Many persons, both men and women, were engaged in cleaning cloth and stuffs of various kinds; and the occupations of the



No. 396. Fullers. *Beni-Hassan.*

a, *b*, inclined tables. *c c*, the water running off into the trough below.

fuller form some of the numerous subjects of the sculptures. It is, however, probable that they were only a subdivision of the dyers, whose skill in colouring cloth I have already noticed.

A far more numerous class were the potters; and all the processes of mixing the clay, and of turning, baking, and polishing the vases, are represented in the tombs of Thebes and Beni Hassan.

They frequently kneaded the clay with their feet; and after it had been properly worked up, they formed it into a mass of convenient size with the hand, and placed it on the wheel,[2] which, to judge from that represented in the paintings, was of very simple construction, and turned with the hand. The various forms of the vases were made out by the finger during their revolution;

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time of Solomon and before his day; and the aboriginal tribe who speak it is there still.—G. W.]

The Egyptian name of the monkey was *qaf*, and is the same as the Greek *kebos*, and has been supposed to be derived from the Sanscrit; but the Egyptian word appears in the tombs at the time of Cheops of the 4th Dynasty, over the animal, and shows that it is much older than the Sanscrit form. Apes were called *ben*, and the Cynocephalus *āāni*. Both came as tribute from Kush, or Æthiopia, and Punt, or Somali.—S. B.

[1] The Arabs also use the bark of the *Acacia sayal* for tanning; it grows in the desert, but not in the valley of the Nile.

[2] Some supposed the potter's wheel to have been invented by Anacharsis, but, as Strabo observes, it was already known to Homer. (Strabo, vii. p. 209. Seneca, Epist. 90. Plin. vii. 56.)

the handles, if they had any, were afterwards affixed to them; and the devices and other ornamental parts were traced with a wooden or metal instrument, previous to their being baked. They were then suffered to dry, and for this purpose were placed on planks of wood; they were afterwards arranged with great care in trays, and carried by means of the usual yoke, borne on men's shoulders, to the oven.

Many of the vases, bottles, and pans of ordinary quality were very similar to those made in Egypt at the present day, as we learn from the representations in the paintings, and from those found in the tombs, or in the ruins of old towns; and judging from the number of Coptic words applied to the different kinds, their names were as varied as their forms. Coptos and its vicinity were always noted for this manufacture; the clays found there were peculiarly suited for porous vases to cool water; and their qualities are fully manifested, at the present day, in the *goolleh*[1] or *bardak* bottles of Qeneh.

That the forms of the modern *goollehs* are borrowed from those of an ancient time is evident, from the fragments found amidst the mounds, which mark the sites of ancient towns and villages, as well as from the many preserved entire; and a local tradition affirms that the modern manufacture is borrowed from, and has succeeded without interruption to, that of former days.[2]

It is impossible to fix the period of the invention of the potter's wheel; and the assertion of Pliny, who attributes it to Corœbus the Athenian,[3] is not only disproved by probability, but by the positive fact that it was known at the earliest epoch of Egyptian history, of which the sculptures have been preserved, previous to the arrival of Joseph, and consequently long before the foundation of Athens.

But Pliny's chapter of inventions abounds with errors of this kind, and serves to show how commonly the Greeks adopted the discoveries of other nations, particularly of Egypt and Phœnicia, and claimed them as their own: even the art of cutting stones is

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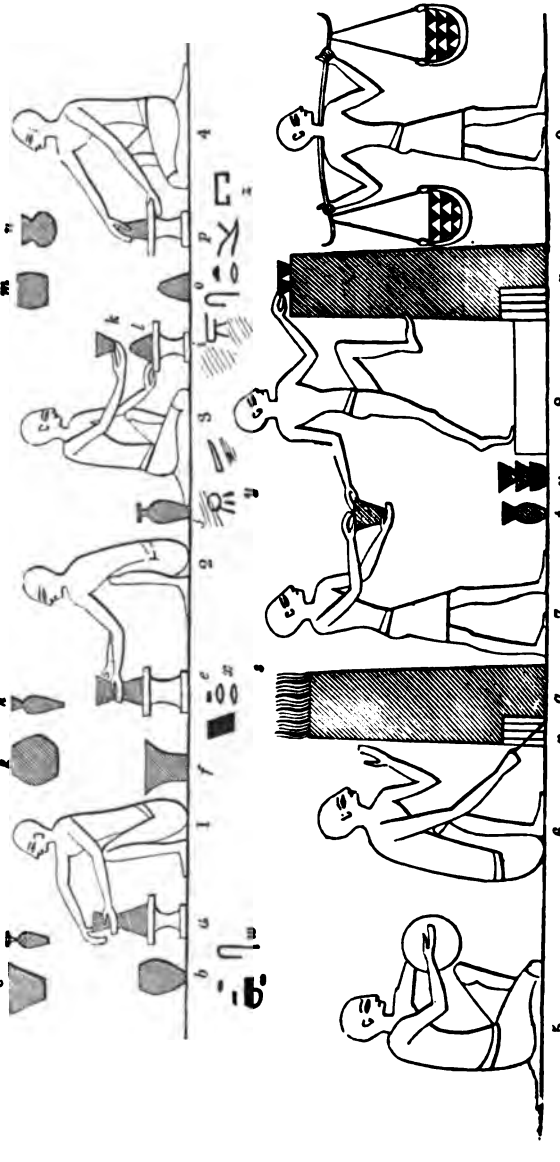
[1] This is the old Egyptian word *qarreh*, for pottery, handed down to the present day.

[2] Vessels of pottery are mentioned in a tomb close to the pyramid of Meidoum, supposed to be as old as the 2nd Dynasty. (Mariette, 'Monum. divers,' pl. 12.) Small hand-made vases abound in the *débris* of the tombs of the Pyramids of Saqqarah, of the age of the 5th Dynasty, and numerous terra-cotta vases of red earthenware are given by Lepsius, Denkm. Abth. ii. Bl. 163. They are of the age of the 4th and 5th Dynasties.—S. B.

[3] Plin. vii. 56.

attributed to Cadmus of Thebes; and Thales of Miletus was said to have enlightened the Egyptians, under whom he had



No. 397. *Beni-Hassan.*

Pottery making earthenware vases.

a, *c*, *f*, *p*, the wheels on which the clay was put. *Fig.* 1 forms the inside and lip of the cup as it turns on the wheel, *a*. *b*, *c*, *d*, are cups already made. *Fig.* 2 forms the outside of the cup, indenting it with the hand at the base, preparatory to its being taken off. *Fig.* 3 has just taken off the cup from the clay, *i*. *Fig.* 4 puts on a fresh piece of clay. *Fig.* 5 forms a round slab of clay with his two hands (*tydi*, 'forms'). *Fig.* 6 stirs and prepares the oven, *q*. At *s* is the fire which rises through the long narrow tube or chimney of the oven, upon the top of which the cups are placed to bake, as at *v* (*gver*, 'furnace'). *Fig.* 7 hands the cups to the baker, *s* (*abi*, 'dried'). *Fig.* 9 carries away the baked cups from the oven (*it ast er hôre*, 'takes them to the store-house').

long been studying,[1] by teaching them to measure the altitude

[1] The Greeks went to study in Egypt, as modern artists in Italy.

of a pyramid, or other body, by its shadow,[1] at the late period of 600 B.C. Though we may pardon, we must smile at, the vanity of the Greeks, who pretended to the merit of pointing out to their instructors a discovery[2] of which men so skilful in astronomy and mathematics could not have been ignorant; but we must express our surprise at the simplicity of modern writers who believe and repeat so improbable a story.

The Egyptians displayed much taste in their gold, silver, porcelain, and glass vases; but when made of earthenware for ordinary purposes they were sometimes devoid of elegance, and scarcely superior to those of England before the classic taste of Wedgwood substituted the graceful forms of Greek models for the unseemly productions of our old potteries. Though the clay of Upper Egypt was particularly suited to porous bottles, it could not be obtained of a sufficiently fine quality for the manufacture of vases like those of Greece and Italy; in Egypt, too, good taste did not extend to all classes as in Greece; and vases used for fetching water from a well, or from the Nile, were frequently of a very ordinary kind, far inferior to those carried by the Athenian women to the fountain of Kallirrhoë.

The Greeks, it is true, were indebted to Egypt for much useful knowledge, and for many early hints in art, but they speedily surpassed their instructors in taste, and improved on the information they had acquired; and in nothing, perhaps, is this more strikingly manifested than in the productions of the potter.

[Earthenware was extensively used in Egypt for many purposes, and afforded ample employment to the potter; for domestic uses the chief ones being the amphoræ of unglazed or polished ware for holding wine, oils, and other liquids, water vases, jugs for pouring out liquids, bottles, and jars, generally of small size, for holding various edible and other substances. These were sometimes inscribed with the name of their contents, and the mouth secured by a clay stopper, fastened by a linen bandage. Saucers, or pateræ, a kind of plate, were also made, as also various small phials, or unguentaria. Some of these vases were often painted with colours in tempera, covered with a glaze, the chief designs being bands round the body, or vandyked or chequered

[1] Plin. xxxvi. 12: 'When the shadow was equal to its height,' at an angle of 45°.

[2] On a par with this is their deriving foreign names from their own language, as Isis from the Greek word signifying 'knowledge' (Plut. de Isid. s. 2); and many others.

patterns at the neck, occasionally with representations of collars and other simple ornaments, but never with elaborate designs. At a later period some of the bottles have on them a representation of the god Bes or Bessa. It is of course impossible to define all the uses to which those small vases of unglazed earthenware were applied; but all trades used the larger for manufactures: jar-shaped vases held various liquids, tall jugs wine or Nile water; oil and drugs were kept in jars, other cosmetics in jugs with spouts; wine, honey, and milk were often kept in wide-mouthed vessels resembling the Roman *ollæ*. The clay varies according to the place and period; and the best vessels made by the potter are those of the colour of sealing-wax, polished and lucent, some of which are of very elegant shape, and modelled in the human shape or that of animals. But the finest of all the products of the Egyptian potter were the vases, covered with a vitreous glaze, produced for the toilet, of a blue, green, and other colours, consisting of small vases with inscriptions and figures, and of different shapes,[1] hemispherical bowls or pateræ, lotus-shaped goblets, drop-shaped vases, others of the type for holding stibium, the flasks of the age of the 26th Dynasty, and a few moulded in the shape of goats, hedgehogs, and other animals. These are the porcelain of Egypt, and the beautiful blue of the best age is unrivalled at the present day. Besides objects for domestic use the potter made tiles, mouldings, and other pieces for inlaying, for architecture and sepulchral purposes, and largely supplied the undertaker with rings, beads, and bugles, for the decoration of the mummies, and made sepulchral jars and sepulchral figures in large numbers for the sepulchres.[2]—S. B.]

Carpenters and cabinet-makers were a very numerous class of workmen; and their occupations generally form one of the most important subjects in the paintings which represent the Egyptian trades. Egypt produced little wood; and, with the exception of the date and dôm palms, the sycamore, tamarisk, and acacias, few trees of native growth afforded timber either for building or for ornamental purposes. The principal uses of the date and dôm trees I have already mentioned. For coffins, boxes, tables, doors, and other objects which required large and thick planks, for idols and wooden statues, the sycamore was principally employed; and from the great quantity discovered in the tombs alone, it is

[1] The various shapes will be found in Rosellini, 'Monum. Civili,' tav. l. and foll.

[2] Birch, 'Ancient Pottery,' 8vo., Lond., 1873, p. 15 and foll.

evident that the tree was cultivated to a great extent. It had the additional recommendation of bearing a fruit to which the Egyptians were very partial; and a religious prejudice claimed for it and the *Persea* the name and rank of sacred fruit trees.

The tamarisk was preferred for the handles of tools, wooden hoes, and other things requiring a hard and compact wood; and of the acacia were made the planks and masts of boats, the handles of offensive weapons of war, and various articles of furniture. Large groves of this tree were cultivated in many parts of Egypt, especially in the vicinity of Memphis and Abydus, where they still exist; and besides its timber, the acacia was highly valued for the pods it produced, so useful for tanning, and for the gum which exudes from the trunk and branches, now known under the name of gum arabic.[1] This tree is not less prized by the modern Egyptians, who have retained its name as well as its uses; *sont* being applied to this species of acacia, both in Arabic and the ancient Egyptian language.

Besides the *Sont*, or *Acacia* (*Mimosa*) *Nilotica*, the *Sellem*, *Sumr*, *Tulh*, *Fitneh*, *Lebbekh*, and other acacias, which grew in Egypt, were also adapted to various purposes; and some instances are met with of the wood of the *Eqleeq*, or *Balanites Ægyptiaca*, and of different desert trees, having been used by the Egyptian carpenters. For ornamental purposes, and sometimes even for coffins, doors, and boxes, foreign woods were employed; deal and cedar were imported from Syria; and part of the contributions exacted from the conquered tribes of Ethiopia and Asia consisted in ebony and other rare woods, which were annually brought by the chiefs deputed to present their country's tribute to the Egyptian monarchs.

Boxes, chairs, tables, sofas, and other pieces of furniture, were frequently made of ebony, inlaid with ivory; sycamore and acacia were veneered with thin layers, or ornamented with carved devices, of rare wood, applied or let into them: and a fondness for this display suggested to the Egyptians the art of painting common boards to imitate foreign varieties, so generally adopted at the present day. The colours were usually applied on a thin coating of stucco, laid smoothly upon the previously prepared wood, and the various knots and grains painted upon this

[1] Other acacias produce this gum. The *Tulh* has, *par excellence*, the specific title of *gummifera*.

ground indicated the quality of the wood they intended to counterfeit.

The usual tools[1] of the carpenter were the axe, adze, hand-saw, chisels of various kinds (which were struck with a wooden mallet), the drill, and two sorts of planes (one resembling a chisel,[2] the other apparently of stone, acting as a rasp on the surface of the wood, which was afterwards polished by a smooth body, probably also of stone[3]); and these with the ruler,[4] plummet, and right angle,[5] a leather bag containing nails, the hone, and horn of oil, constituted the principal, and perhaps the only, implements he used. Some of the furniture of their rooms, the work of the cabinetmaker, I have already noticed,[6] and have observed the perfection to which they had arrived in the construction of the chairs and ottomans of their saloons; nor can I omit the mention of the art of dovetailing, already practised in the earliest Pharaonic ages, or the mode of applying two planks together in the same plane by means of broad pins or tongues of hard wood. Of the former numerous instances occur, both in large and small objects, and no illustration of it is required; the latter is peculiar, and shows the great care taken to make everything durable, which characterises all the works of the Egyptians.

When two boards are joined together by our modern carpenters, they insert small round pins horizontally into corresponding parts of the edges, and then apply them together, so as to form as it were a single piece; but the Egyptian carpenter was not content with this precaution, and, having used flat pins for this purpose about two inches in breadth, he secured these again, after the boards had been applied to each other, by round pins or wooden nails, driven vertically through the boards, into each of the flat pins; and thus the possibility of the joint opening was effectually prevented, even should the glue, which was added, as in our modern boxes, fail to hold them. After the wood had been reduced to a proper size by the saw, the adze[7] was the principal

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[1] Woodcut No. 172.
[2] Woodcut No. 108, *fig.* 3.
[3] Woodcut No. 108, *fig.* 2.
[4] Woodcut No. 398, *e.*
[5] Woodcut No. 393, part 2, *v*; and No. 398, *f.*
[6] At the beginning of chapter vi.
[7] The adze answered in Egypt all the purposes of the modern plane, a tool which the Egyptians had not invented. Each adze (*nu*, or *setf*) or tool had its name, and on the tablet in the Leyden Museum a list of adzes and their names (as, 'Anup, or Anubis, is its name') is given. ('Zeitschrift f. ägyptisch. Spr. u. Alterth.,' 1873, s. 152.) Different kinds of adzes were employed, according to the requirements; one being adopted for trim-

tool employed for fashioning it; and from the precision with which even the smallest objects are worked with it at the present day by the unskilful carpenters of modern Egypt, we may form some idea of its use in the hands of their expert predecessors; and we are less surprised to meet with it so frequently represented in the sculptures.[1]

Many of them, together with saws and chisels, have been found at Thebes: the blades are all of bronze, the handles of the acacia or the tamarisk; and, which is very singular, the general mode of fastening the blade to the handle appears to have been by thongs of hide. It is probable that some of those discovered in the tombs are only models, or unfinished specimens;[2] and it may have been thought sufficient to show their external appearance, without the necessity of nailing them beneath the thongs;[3] for those which they used were bound in the same manner, though I believe them to have been also secured with nails. Some, however, evidently belonged to the individuals in whose tombs they were buried, and, like the chisels, appear to have been used; for these last often bear signs of having been beaten with the hammer or mallet.

The drill is frequently exhibited in the sculptures. Like all the other tools, it was of the earliest date, and precisely similar to that of modern Egypt, even to the nut of the dôm in which it turned, and the form of its bow with a leathern thong.[4] The chisel was employed for the same purposes,[5] and in the same manner, as at the present day, and was struck with a wooden mallet, sometimes flat at the two ends, sometimes of circular or oval form; several of which last have been found at Thebes, and are preserved in our European museums. The handles of the chisels were of acacia, tamarisk, or other compact wood; the

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ming wood, another by boat-builders, and a third by bow and arrow makers. (Chabas, 'Études sur l'Antiquité historique,' p. 74.) Some of the adzes had wooden handles, and others iron blades.—S. B.

[1] The ancient names were *bes*, the saw; *menχa*, mallet, or hammer, some of the latter being used by the Egyptians; *shenob*, a chisel; *tefa*, a hand-saw; *ānt*, a kind of knife or adze; *nu*, an adze; *setf*, another kind of same; *sa. t*, a brush; *neter aft*, a square. ('Zeitschrift f. ägyptisch. Spr. u. Alterth.,' 1873, s. 152.)—S. B.

[2] A set of tools used as models and recording the fact of Thothmes III., having 'stretched the cord,' equivalent to the modern laying of the foundation, of the gate, or part of the building of the temple of Karnak, called Amen-tsar, has been found at Thebes. The blades were thinner and lighter than those in actual use. (Chabas, 'Études,' pp. 76, 79.)—S. B.

[3] It is probable that the stone and bronze celts found in Britain were fastened to their handles in the same manner. Woodcut No. 398, *c*; and No. 393, *a*, part 2.

[4] Woodcut No. 393, part 2.

[5] Various chisels are given in Chabas, 'Études,' p. 78.

blades of bronze; and the form of the points varied in breadth, according to the work for which they were intended.

The hatchet was principally used by boat-builders, and those who made large pieces of framework; and trees were felled with the same instrument.

The mode of sawing timber was primitive and imperfect, owing to their not having adopted the double saw; and they were obliged to cut every piece of wood, however large, single-handed. In order, therefore, to divide a beam into planks, they placed it, if not of very great length, upright between two posts, firmly fixed in the ground, and being lashed to them with cords, or secured with pins, it was held as in a vice.

Among the many occupations of the carpenter, that of veneering is noticed in the sculptures of Thebes, as early as the time of the third Thothmes, whom I suppose to be the Pharaoh of the Exodus; and the application of a piece of rare wood of a red colour, to a yellow plank of sycamore or other ordinary kind, is clearly pointed out.[1] And in order to show that the yellow wood is of inferior quality, the workman is represented to have fixed his adze carelessly in a block of the same colour, while engaged in applying them together. Near him are some of his tools, with a box or small chest, made of inlaid and veneered wood, of various hues; and in the same part of the shop are two other men, one of whom is employed in grinding something with a stone on a slab, and the other in spreading glue with a brush.

It might, perhaps, be conjectured that varnish was intended to be here represented; but the appearance of the pot on the fire, the piece of glue with its concave fracture, and the workman before mentioned applying the two pieces of wood together, satisfactorily decide the question, and attest the invention of glue[2] 3300 years ago. This is not, however, the only proof of its use at an early period, and several wooden boxes have been found in which glue was employed to fasten the joints.

Various boxes, shrines, articles of furniture, and other works of the cabinet-maker, are frequently portrayed in the paintings of Thebes, many of which present not inelegant forms, and are

[1] Woodcut No. 398, *a*.

[2] Rosellini seems to think that the application of colour is here represented; but the presence of the pot, containing the brush, upon the fire (woodcut No. 398, *i*) will scarcely admit of this, though the figure (*fig.* 2) grinding on the slab might appear to strengthen his conjecture. He has placed this subject with the painters of Beni-Hassan, but it is at Thebes. Pliny ascribes the invention of glue to Dædalus, as well as of the saw, the axe, the plumb-line, and the auger. (Plin. vii. 56.)

beautifully made. I have already noticed several of the smaller objects, as boxes for trinkets and ointment, wooden spoons, and the like; and have described a curious substitute for a hinge[1] in some of those discovered at Thebes.

Many boxes had lids resembling the curved summit of a royal canopy,[2] and were ornamented with the usual cornice;[3] others had a simple flat cover; and some few a pointed summit, resembling the shelving roof of a house.[4] This last kind of lid was divided into two parts, one of which alone opened, turning on two small pins at the base, on the principle of the doors of their houses and temples; and, when necessary, the two knobs at the top[5] could be tied together and sealed, in the same manner as in that previously mentioned.[6]

When not veneered, or inlaid with rare wood, the sides and lid were painted; and those intended for the tombs, to be deposited there in honour of the deceased, had usually a funeral inscription, or a religious subject painted upon them, representing offerings presented by members of his family.[7]

No. 398.

Veneering and the use of glue.

a, a piece of dark wood applied to one of ordinary quality, *b*. *c*, adze, fixed into a block of wood of the same colour as *b*.
e, a ruler; and *f*, a right angle, similar to those used by our carpenters. *g*, a box.
i, glue pot on the fire. *j*, a piece of glue.
Fig. 2 is grinding something. *Fig.* 3 is applying the glue with a brush, *p*.

Several boxes have been found at Thebes; and the British Museum possesses some formerly belonging to Mr. Salt, one of which is remarkable

[1] A box in the British Museum, No. 5906, has a hinge like a modern snuff-box, cylindrical, and dove-tailed into the upper part of the back.—S. B.

[2] Woodcut No. 399, *figs.* 1, 2, 3, 6.

[3] Woodcut No. 399, *fig.* 1.

[4] *Figs.* 4 and 8.

[5] *Fig.* 4.

[6] In vol. i. p. 362.

[7] Woodcut No. 399, *figs.* 4 and 8

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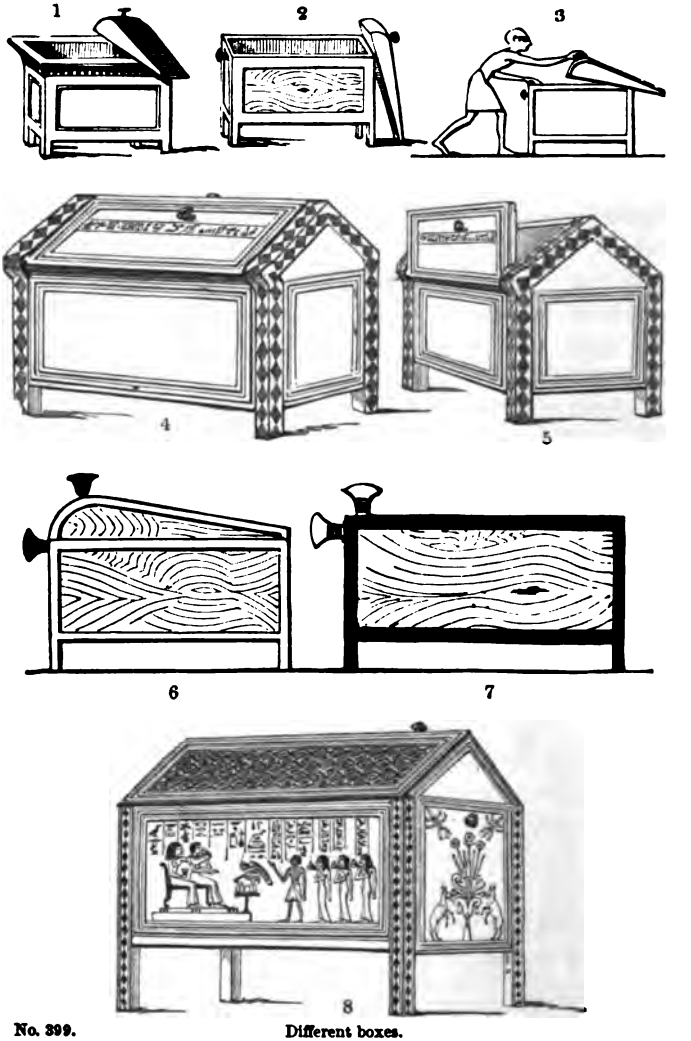
for the brilliancy of the colours imparted to the pieces of ivory with which it is inlaid. The box is of ebony; the ivory,



No. 399. Different boxes.

Figs. 1 and 2. Mode of placing the lid when the box was opened.
Fig. 3. Man opening a box, from a painting at Thebes.
Figs. 4 and 5. A painted box of Mr. Salt's Collection, showing how the lid opened.
6 and 7. Boxes from the paintings of Thebes.
Fig. 8. Another box with a shelving lid, from a tomb at Thebes, in the Alnwick Museum.

painted red and blue, is let into the sides and edges, and the lid is ornamented in the same manner. There is in this a substitute for a hinge, similar to the one before mentioned,

except that here the back of the cross-bar, cut to a sharp edge along its whole extent, fits into a corresponding groove at the end of the box: the two knobs are fixed in their usual place at the top and front. The lids of many boxes were made to slide in a groove, like our small colour boxes, as that given in a preceding woodcut;[1] others fitted into the body, being cut away at the edges for this purpose; and some turned on a pin at the back, as I have shown in the long-handled boxes before mentioned.[2] In opening a large box they frequently pushed back the lid, and then either turned it sideways,[3] and left it standing across the breadth of the box, or suffered it to go to the ground; but in those of still larger dimensions, it was removed altogether and laid upon the floor.

With the carpenters may be mentioned the wheelwrights, the makers of coffins, and the coopers; and this subdivision of one class of artisans, showing a systematic partition of labour, is one of many proofs of the advancement of this civilised people.

I have already shown that the Egyptian chariot was of wood,[4] and have pointed out what portion of it was the province of the carpenter and the currier; and having described the war-chariot[5] and the curricle of the towns, it only remains to notice the travelling car, or light *plaustrum*, which was drawn by oxen: the Egyptians also yoked mules to chariots; an instance of this occurs in the British Museum. Though so frequently used in Egypt, it is singular that one instance alone occurs of this kind of car, in a tomb opened at Thebes in 1827; and this ought to show how wrong it is to infer the non-existence of a custom from its not being met with in the sculptures. The same remark also applies to the camel, which, in consequence of its not being

[1] Woodcut No. 293.

[2] Woodcuts Nos. 283, 291, and 293.

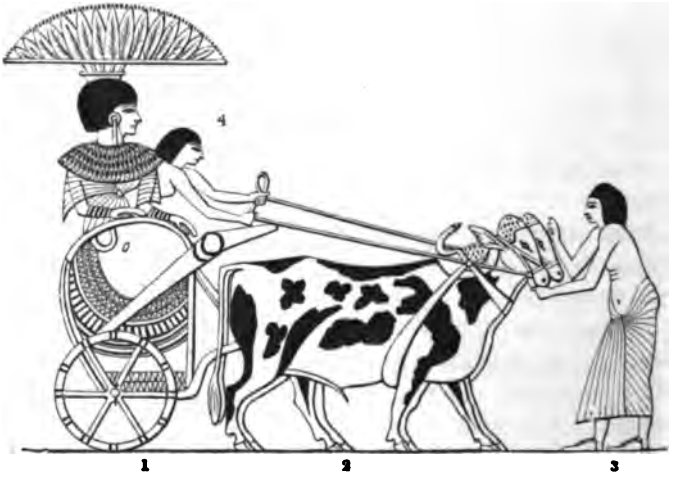
[3] Woodcut No. 399, *figs.* 1, 2, 3.

[4] I have stated that the Egyptian chariot had only two wheels, and one instance is alone met with of a four-wheeled carriage. Pliny says waggons with four wheels were an invention of the Phrygians (lib. vii. 56).

[5] Chariots do not appear to have been in use in Egypt till the commencement of the 18th Dynasty. There was a considerable importation of them from the Rut-en-nu, or Northern Syria and Mesopotamia, and they are described in the annals of Thothmes III. as made of beech-wood and ornamented with gold, silver, and colours. ('Records of the Past,' vol. ii. p. 26.) They had two wheels with six spokes, and no seats, but could hold three persons standing; but it appears that a carpet was sometimes placed on the bottom, on which the driver sat with his legs hanging down; the body or outer frame-work was painted, and perhaps plated with gold and silver, and the pole was attached by leather straps. War-chariots had, in addition, quivers at the sides for holding the bow and arrows; the collar was in shape of a bow. (Pierret, 'Dict. d'Arch. Égypt.,' pp. 123, 124.)—S. B.

found either in the paintings or hieroglyphics,[1] is conjectured by some to have been unknown in Egypt at an early period; though, as I have already observed,[2] it is distinctly mentioned in the Bible among the presents given to Abraham by the king of Egypt.

The plaustrum was very similar to the war-chariot[3] and the curricle, but the sides appear to have been closed, and it was drawn by a pair of oxen instead of horses. The harness was much the same, and the wheels had six spokes. In a journey it was occasionally furnished with a sort of umbrella, fixed upon a



No. 400. An Ethiopian princess travelling in a plaustrum, or car drawn by oxen. Over her is a sort of umbrella. Thebes.

Fig. 3, an attendant. 4, the charioteer or driver.

rod rising from the centre, or back part of the car: the reins were the same as those used for horses, and apparently furnished with a bit; and besides the driver, a groom sometimes attended on foot, at the head of the animals, perhaps feeding them as they went.

The above woodcut represents an Ethiopian princess, who is on her journey through Upper Egypt to Thebes, where the court then resided; but whether it was on the occasion of

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[1] I have noticed an instance of it on a seal I found in Nubia, of uncertain date.

[2] In chap. viii.

[3] It has been always a matter of surprise how the ancients could traverse hilly countries, where no roads were made, with so much facility, in chariots.

her projected marriage with the king, the brother of the third Amenophis, or merely to present her homage to him, is uncertain. A large tribute is brought at the same time from her countrymen, the Cush, or Ethiopians; which seems to show that it merely relates to a visit of ceremony from the queen or princess of that country; and the fact of the charioteer and some other of the attendants being Egyptians, suggests that the plaustrum was also provided from Egypt, as was the case when Pharaoh sent for Jacob and his family to bring them to Egypt.[1] The plaustra are called in Genesis 'waggons;'[2] they were commonly used in Egypt for travelling: and Strabo performed the journey from Syene to the spot where he crossed the river to visit Philæ in one of those carriages.[3]

Besides the plaustrum, they had a sort of palanquin,[4] and a canopy or framework answering the purpose of a sedan-chair, in which they sometimes sat or stood, in their open pleasure boats, or in situations where they wished to avoid the sun; and these were also the work of the cabinet-maker.

Certain persons were constantly employed in the towns of Egypt, as at the present day in Cairo and other places, to pound various substances in large stone mortars; and salt, seeds, and other things were probably taken, in the same manner, by a servant to these shops, whenever it was inconvenient to have it done in the house. The pestles they used, as well as the mortars themselves, were precisely similar to those of the modern Egyptians, and their mode of pounding was the same, two men alternately raising ponderous metal pestles with both hands, and directing their falling point to the centre of the mortar, which is now generally made of a large piece of granite, or other hard stone, scooped out into a long narrow tube, to little more than half its depth. When the substance was well pounded, it was taken out and passed through a sieve, and the larger particles were again returned to the mortar, until it was sufficiently and equally levigated; and this, and the whole process here represented, so strongly resemble the occupation of the public pounders at Cairo, that no one who has been in the habit of walking in the streets of that town can fail to recognise the custom, or doubt of its having been handed down from the early Egyptians, and retained without the slightest alteration, to the present day.

[1] Gen. xlv. 19.

[2] They were termed *ageloot*, עֲגָלוֹת, *wheeled* carriages. (Gen. *loc. cit.*)

[3] Strabo, lib. xvii. p. 562, ed. Cas.: ἁμάξῃ.

[4] Woodcut No. 199.

In a country where water and other liquids were carried or kept in skins and earthenware jars, there was little necessity for the employment of wooden barrels, which, too, are little suited to a climate like the hot and arid Egypt; and modern experience there shows how ill adapted barrels are for such purposes, and how soon they fall to pieces, if neglected or left empty for a very short period. We cannot, therefore, expect that they should be in common use among the ancient Egyptians; and the skill of the cooper[1] was only required to make wooden measures for grain,[2] which were bound with hoops either of wood or metal, and resembled in principle those now used in Egypt for the same purpose, though in form they approached nearer to the small barrels,[3] or kegs, of modern Europe.

No. 401. Pounding various substances in stone mortars, with metal pestles. Thebes.

a, *g*, *f*, mortars. *d d*, pestles. *Figs.* 1 and 2 are alternately raising and letting fall the pestles into the mortar. *Figs.* 3 and 4 are sifting the substance after it is pounded; the coarser parts, *h*, being returned into the mortar to be again pounded. The inscriptions are the directions: *k* reads, 'Hasten all the work in taking care of all that is given out; make ye the bread;' *l*, 'The pounding of the corn in the storehouses of . . . .'

In an agricultural scene, painted at Beni-Hassan, a small barrel is represented, placed upon a stand, apparently at the end of the field, which I at first supposed to have been intended to hold water for the use of the husbandmen, one of whom is approaching the spot; calling to mind the cup of wine presented to the ploughman on reaching the end of the furrow, mentioned by Homer in his description of the shield of Achilles:[4] but it is

[1] The coopers of Cairo are generally Greeks.

[2] One of these is represented in woodcut No. 109, *fig.* 2.

[3] In Europe, barrels were said by Pliny to have been invented by the Gauls, who inhabited the banks of the Po. Varro and Columella mention them in their time. They were pitched within, and came into use at Rome in the days of Domitian.

[4] Homer, Il. Σ, 545.

probable that in this instance also it is intended to indicate the measure of grain with which the land was to be sown after the plough had passed.

A great number of persons were constantly employed in making coffins, as well as the numerous boxes, wooden figures, and other objects connected with funerals, who may be comprehended under the general head of carpenters; the undertakers, properly so called, being a different class of people, attached to and even forming part of the sacerdotal order, though of an inferior grade. Indeed the ceremonies of the dead were so numerous, and so many persons were engaged in performing the several duties connected with them, that no particular class of people can be said to have had the sole direction in these matters; and we find that the highest orders of priests officiated in some, and in others those of a very subordinate station. Thus the embalmers were held in the highest consideration, while those who cut open the body, when the intestines were removed, are said to have been treated with ignominy and contempt.[1]

The boat-builders may be divided into two separate and distinct classes; one of which formed a subdivision of the carpenters, the other of the basket-makers, or the weavers of rushes and osiers, another very numerous class of workmen.

The boats made by these last were a sort of canoe or punt, used for fishing, and consisted merely of water-plants or osiers, bound together with bands made of the stalks of the papyrus or cyperus.[2] They were very light, and some so small that they could easily be carried from one place to another;[3] and the Ethiopian boats mentioned by Pliny,[4] which were taken out of the water and carried on men's shoulders past the rapids of the cataracts, were probably of a similar kind.

Strabo,[5] on the other hand, describes the boats at the cataracts of Syene passing the falls in perfect security, and exciting the surprise of the beholders, before whom the boatmen delighted in displaying their skill; and Celsus affirms that they were made of the papyrus.

Papyrus boats are frequently noticed by ancient writers. Plutarch describes Isis going, in search of the body of Osiris, 'through the fenny country, in a barque made of the papyrus;

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[1] Diod. i. 91.

[2] Not the same species as that used for making paper.

[3] Achilles Tatius, lib. iv.

[4] Plin. v. 9.

[5] Strabo, lib. xvii. p. 562, ed. Cas.

whence it is supposed that persons using boats of this description are never attacked by crocodiles, out of fear and respect to the goddess;'[1] and Moses is said to have been exposed in 'an ark (or boat) of bulrushes, daubed with slime and with pitch.'[2] From this last we derive additional proof that the body of such boats was composed of rushes, which, as I have observed, were bound together with the papyrus; and the mode of rendering them impervious to water is satisfactorily pointed out by the coating of pitch with which they were covered. Nor can there be any doubt that pitch was known in Egypt at that time, since we find it on objects which have been preserved of the same early date; and the Hebrew word *zift* is precisely the same as that used for pitch by the Arabs to the present day.

Pliny mentions boats 'woven of the papyrus,'[3] the rind being made into sails, curtains, matting, ropes, and even into cloth; and observes elsewhere that the papyrus, the rush, and the reed were all used for making boats in Egypt.[4]

'Vessels of bulrushes' are again mentioned in Isaiah.[5] Lucan alludes to the mode of binding or sewing them with bands of papyrus;[6] and Theophrastus[7] notices boats made of the papyrus, and sails and ropes of the rind of the same plant. That small boats were made of these materials is very probable; and the sculptures of Thebes, Memphis, and other places abundantly show that they were employed as punts or canoes for fishing, in all parts of Egypt during the inundation of the Nile, particularly in the lakes and canals of the Delta.

There was another kind, called by Strabo *pécton*, in one of which he crossed the Nile to the Island of Philæ, 'made of thongs, so as to resemble wicker-work;'[8] but it does not appear from his account whether it was formed of reeds bound together with thongs, or was like those made in Armenia, and used for going down the river to Babylon, which Herodotus describes, of osiers covered with hides.[9]

The Armenian boats were merely employed for transporting goods down the current of the Euphrates, and on reaching Babylon

[1] Plut. de Isid. s. 18.
[2] Exod. ii. 3. The bulrush is called גֹּמֶא; the paper reeds in Isaiah xix. 7 are עָרוֹת.
[3] Plin. xiii. 11.
[4] Ibid. vi. 22, and vii. 16.
[5] Isaiah xviii. 2.
[6] Lucan, iv. 136.
[7] Theophrast. iv. 9.
[8] Strabo, xvii. pp. 54, 562.
[9] Herodot. i. 194. The coracles of the ancient Britons were made of wicker-work covered with hides. (Cæs. B. G. i. 54.) [And the geographer mentions another kind of boat used on the canals during the inundation (*testacea*, ὀστράκινα).—G. W.

were broken up; the hides being put upon the asses which had been brought on board for this purpose, and the traders returning home by land. 'They were round, in form of a shield, without either head or stern; the hollow part of the centre being filled with straw.' 'Some were large, others small, and the largest were capable of bearing 5000 talents' weight.' They were, therefore, very different from the boats reported by the same historian to have been made in Egypt for transporting goods up the Nile, which he describes as being built in the form of ordinary boats, with a keel, and a mast and sails.

'The Egyptian boats of burthen,' Herodotus says, 'are made of a thorn wood, very similar to the lotus of Cyrene, from which a tear exudes, called gum. Of this tree they cut planks, measuring about two cubits, and, having arranged them like bricks, they build the boat in the following manner:—They fasten the planks round firm long pegs, and, after this, stretch over the surface a series of girths, but without any ribs, and the whole is bound within by bands of papyrus. A single rudder is then put through the keel, and a mast of thorn-wood, and sails of the papyrus (rind) complete the rigging. These boats can only ascend the stream with a strong wind, unless they are towed by ropes from the shore; and when coming down the river, they are provided with a hurdle made of tamarisk,[1] sewed together with reeds, and a stone, about two talents' weight, with a hole in the centre. The hurdle is fastened to the head of the boat, and allowed to float on the water; the stone is attached to the stern, so that the former, carried down the river by the rapidity of the stream, draws after it the *baris*—for such is the name of these vessels—and the latter, dragged behind and sinking into the water,[2] serves to direct its course. They have many of these boats, some of which carry several thousand talents' weight.'[3]

That boats of the peculiar construction he here describes were really used in Egypt is very probable; they may have been employed to carry goods from one town to another, and navigated in the manner he mentions: but we may be allowed to doubt their carrying several thousand talents' or many tons' weight; and we have the evidence of the paintings of Upper and Lower Egypt to show that the large boats of burthen

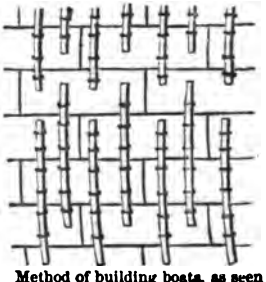
[1] Plin. xiii. 21: 'Myricen, quam alii tamaricen vocant.'

[2] [They now put stones at the head of their light boats, on going down the stream; but no hurdle anywhere in the water.—G. W.]

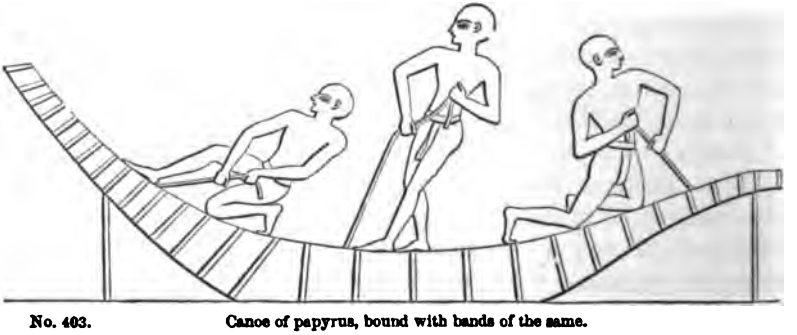
[3] Herodot. ii. 96.

were made of wooden planks, which men are seen cutting with saws and hatchets, and afterwards fastening together with nails and pins; and they were furnished with spacious cabins, like those of modern Egypt.

[The boats of the Nile are still built with planks of the *sont*. The planks, arranged as Herodotus states, like bricks, appear to have been tied to several long stakes, fastened to them internally. Something of the kind is still done, when they raise an extra bulwark above the gunwale. In the large boats of burthen the planks were secured by nails and bolts, which men are represented in the paintings driving into holes, previously drilled for them. There was also a small kind of punt or canoe, made entirely of the papyrus, bound together with bands of the same plant, the 'vessels of bulrushes' mentioned in Isaiah;[1] but these were not capable of carrying large cargoes, and still less would papyrus ships cross the sea to the Isle of Taprobane, Ceylon, as Pliny supposes.[2] This mistake may have originated in some sails and ropes having been made of the papyrus; but these were rarely used, even on the Nile. In one of the paintings at Kom el Ahmar one is represented with a sail, which might be made of the papyrus rind, and which appears to fold up like those of the Chinese;



No. 402. Method of building boats, as seen from within.

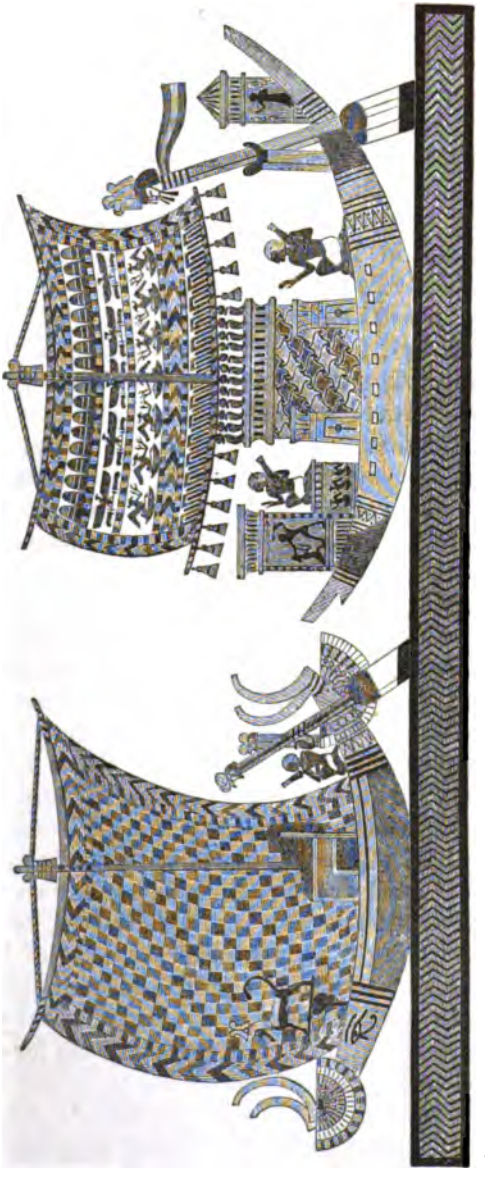


No. 403. Canoe of papyrus, bound with bands of the same.

and the mast is double, which was usual in large boats in the time of the 4th and other early dynasties.[3] That cloth sails, occasionally with coloured devices worked or painted on them,

[1] Isaiah xviii. 20. Plin. vi. 22; vii. 16; xiii. 11. Theophrast. iv. 9. Plut. de Isid. s. 18. Lucan, iv. 136.
[2] Plin. vi. 22.
[3] Woodcut No. 410.

should be found on the monuments at least as early as the 18th and 19th Dynasties, is not surprising, since the Egyptians were noted at a very remote period for the manufacture of linen and other cloths, and exported sail-cloth to Phœnicia.[1] Hempen[2] and palm ropes are also shown by the monuments to have been adopted for all the tackling of boats. The process of making them is found at Beni-Hassan and at Thebes; and ropes made from the strong fibre of the palm-tree are frequently found in the tombs. This last was probably the kind most generally used in Egypt, and is still very common there, as the cocoa-nut ropes are in India.



Boats with embroidered sails of many colours.

No. 404.

The large boats had generally a single rudder, which resembled a long oar, and traversed on a beam at the stern, instances of which occur in many countries at the present day; but many had two rudders, one at each side, near the stern, suspended

[1] Ezek. xxvii. 7.

[2] Herod. vii. 25.

at the gunwale, or slung from a post, as a pivot, on which it turned. The small-sized boats of burthen were mostly fitted with two rudders; and one instance occurs of three on the same side. On the rudder, as on the bows of the boat, was painted the eye, a custom still retained in the Mediterranean and in China; but the Egyptians seem to have confined it to the funeral *baris*. The boats always had one mast at the time Herodotus was in Egypt; but it may be doubted if it was of the heavy acantha wood, which could with difficulty have been found sufficiently long and straight for the purpose; and fir-wood was too well known in Egypt not to be employed for masts. Woods of various rare kinds were imported into Egypt from very distant countries as early as the time of the 18th Dynasty; and deal was then used for all common purposes, as well as the native sycamore. The hulls of boats were even sometimes made of deal; and it would have been strange if they had not discovered how much more it was adapted for the masts. In the time of the 4th, 6th, and other early dynasties the mast was double; but this was given up as cumbrous, and was not used after the accession of the 18th or even of the 12th Dynasty. The custom of towing up the stream is the same at present in Egypt; but the modern boatmen make use of the stone in coming down the stream to impede the boat, which is done by suspending it from the stern, while the tamarisk raft before the head is dispensed with. The contrivance Herodotus mentions was not so much to increase the speed as to keep the boat straight, by offering a large and buoyant object to the stream. When the rowers are tired, and boats are allowed to float down, they turn broadside to the stream; and it was to prevent this that the stone and tamarisk raft were applied. A practice almost entirely similar is described by the late Col. Chesney as prevailing to this day on the Euphrates. Speaking of the *kufah*, or round river-boat, he says: 'These boats, in descending the river, have a bundle of hurdles attached, which float in advance, and a stone of the weight of two talents drags along the bottom to guide them.' Æschylus had used this word before Herodotus as the proper term for an *Egyptian* boat.[1] He had also poetically extended it to the whole fleet of Xerxes.[2] Euripides used it as a *foreign* term.[3] Afterwards it came to be a mere variant for πλοῖον.[4] I had supposed Baris to mean 'Boat of

[1] Suppl. 815 and 858.
[2] Pers. 555.
[3] Iph. in Aulid.: βαρβάρους βάριδας.
[4] Bloomfield's note on Æschyl. Pers. 595.

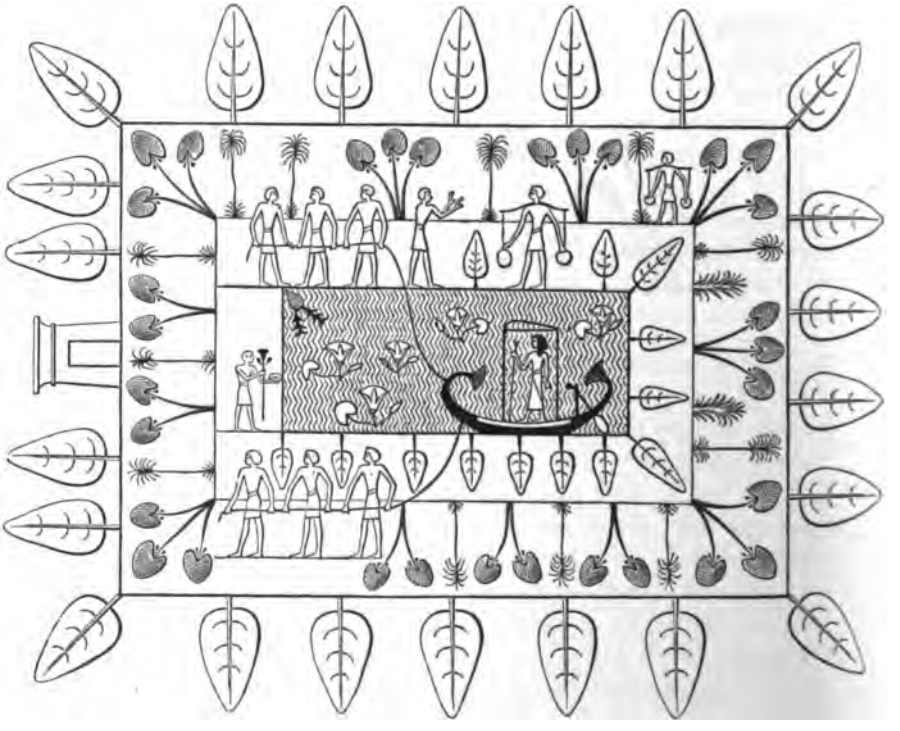
the Sun.' Baris has erroneously been derived from Bai, a 'palm branch,' which had certainly this meaning,[1] but *Oua*, or *Ua*, a 'boat,' is a different word, though a Greek would write it with a β, or beta. The name Baris is used by Plutarch[2] and others. There was an Egyptian boat with a cabin, called by Strabo *thalamegus*, or *thalamiferus*,[3] used by the governors of provinces for visiting Upper Egypt; and a similar one was employed in

No. 405. Funeral boat or Baris, with shrine.

the funeral processions on the sacred Lake of the Dead.[4] There was also a small kind of boat, with a cabin or awning, in which gentlemen were towed by their servants upon the lakes in their pleasure-grounds.[5] But all their large boats had cabins, often of great height and size, and even common market boats were furnished with them, and sufficiently roomy to hold cattle and various goods.[6] The size of boats on the Nile varies now as of old; and some used for carrying corn, which can only navigate the Nile during the inundation, are rated at from 2000 to 4800 ardebs, or about 10,000 to 24,000 bushels' burthen. The ships of war of the ancient Egyptians were not generally of great size, at least in the early times of the 18th and 19th Dynasties, when they had a single row of from 20 to 44 or 50 oars, and were similar to the 'long ships' and *pentekonteroi* of the Greeks, and the galleys of the Mediterranean during the Middle Ages. Some were of much larger dimensions. Diodorus mentions one of cedar, dedicated by Sesostris to the god of Thebes, measuring 280 cubits (from 420 to 478 feet) in length; and in later times they were remarkable both for length and height: one built by

[1] And which is even used in John xii. 13, τὰ βαΐα τῶν φοινίκων, 'palm branches.'
[2] De Isid. s. 18; Iamblichus, de Myst. s. 6, ch. v.
[3] Strabo, xvii. pp. 1134–5.
[4] Woodcut No. 405.
[5] Woodcut No. 406.
[6] Woodcut No. 407.

Ptolemy Philopator having 40 banks of oars, and measuring 280 cubits (or about 478 feet) in length, 38 in breadth, and 48 cubits (or about 83 feet) in height, or 53 from the keel to the top of the poop, which carried 400 sailors, besides 4000 rowers, and near 3000 soldiers.[1] Athenæus says Philopator built another, used on the Nile, half a stadium or about 300 feet long, upwards of 40 cubits broad, and nearly 30 high; and 'the number belonging

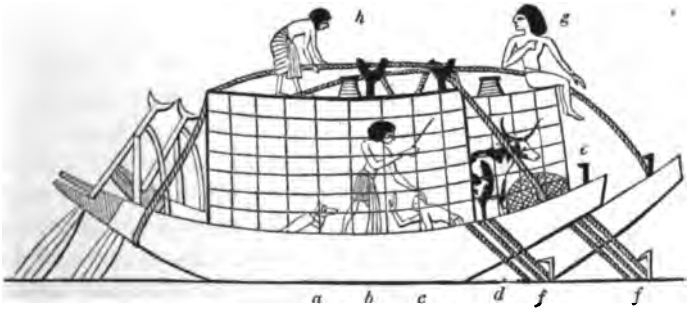


No. 406. Pleasure-boat towed round a pond. Thebes.

to Ptolemy Philadelphus exceeded those of any other king, he having two of 30 banks, one of 20, four of 14, two of 12, fourteen of 11, thirty of 9, thirty-seven of 7, five of 6, seventeen quinqueremes, and more than twice that number of quadriremes, triremes,' &c. He also describes Hiero's ship of 20 banks, sent as a present to Ptolemy. It is singular that no Egyptian, Assyrian, Greek, or Roman monument represents a galley of more than

[1] Plut. Vit. Demet. Athen. Deipn. v. p. 204; Pliny, vii. 56, who mentions one of 40, and another of 50 banks of oars.

one, or at most two tiers of oars, except a Roman painting found in the Orti Farnesiani which gives one with three, though triremes and quinqueremes were the most generally employed. We are not, however, reduced to the necessity of crediting these statements of Pliny and Herodotus; and though punts and canoes of osiers and papyrus, or reeds, may have been used on some occasions, as they still are,[1] on the Nile and the lakes of Egypt, we may be certain that the Egyptians had strong and well-built vessels for the purposes of trade by sea, and for carrying merchandise, corn, and other heavy commodities on the Nile; and



No. 407. Boats for carrying cattle and goods on the Nile. *Thebes.*

The two boats are fastened to the bank by ropes and stakes, *f f*. In the cabin of the first boat, a man bastinadoes a boatman, *c*. He is accompanied by a dog, *a*. In the second boat is a cow, *d*, and a net of hay or chopped straw, *shent*, *e*, as used at present. Men at *g* and *h* are lashing the boats together.

that, even if they had been very bold and skilful navigators, they would not have ventured to India,[2] nor have defeated the fleets of Phœnicia,[3] in their paper vessels.

The sails, when made of the rind of the papyrus, have been supposed similar to those of the Chinese, which fold up like our Venetian blinds; but there is only one boat represented in the paintings which appears to have sails of this kind, though so many are introduced there; nor can we believe that a people noted for their manufactures of linen and other cloths, would have preferred so imperfect a substitute as the rind of a plant, especially as they exported sail-cloth to Phœnicia for that very purpose.[4]

[1] They are very rude, and much smaller than those of ancient times.

[2] Among the numerous productions of India met with in Egypt, which tend to prove an intercourse with that country, may be mentioned the pine-apple, models of which are found in the tombs, of glazed pottery. One was in the possession of Sir Richard Westmacott.

[These are supposed to have been bottles for holding quicksilver, introduced by the Arabs, from some of that metal having been found in them. Others have conjectured them to have been powder flasks or grenades.—S. B.]

[3] In the reign of Apries.

[4] Ezekiel xxvii. 7. In the lamentation of Tyre, 'Fine linen with broidered work from Egypt was that which thou spreadest forth to be thy sail.' [A sail of this

Diodorus[1] and Herodotus[2] both mention the fleet of long vessels, or ships of war, fitted out by Sesostris in the Arabian Gulf. The former states that they were four hundred in number, and that Sesostris was the *first* Egyptian monarch who *built* similar vessels; but Herodotus merely says he was the first who passed into the ocean; and the necessity of previously having ships of war to protect the trade and coasts of Egypt disproves his statement, and suggests that they were used at the early period, when the port of Philoteras traded with the Arabian and, perhaps, even the Indian shore.

Pliny supposes that ships were first built by Danaus,[3] and taken from Egypt to Greece when he migrated to that country, rafts only having been previously known; and he states that some attributed their invention to the Trojans and Mysians, who crossed the Hellespont in their wars with Thrace.[4] The sculptures, however, of ancient Egypt still remain to decide the question; and their dates being now ascertained, we are enabled to form our own opinions on the subject, without the necessity of trusting to the uncertain accounts of ancient writers. From the sculptures of the 18th Dynasty, it appears that the same kind of boats for carrying heavy burthens were then employed in Egypt, as in the later days of Psammatichus and Amasis; they are found at Eileithyia and Beni-Hassan of the age of Amosis,[5] and of Usertesen, the contemporary of Joseph: and in the tombs near the Pyramids they again occur, of an epoch previous to the 16th Dynasty and the reign of Usertesen.

[Boats, indeed, are represented on the sculptures at the earliest period, as early as the 4th Dynasty, and in a country like Egypt were a necessity of the earliest civilisation; they were chiefly boats of burthen and transports. The remarkable inscription of Una, of the 5th Dynasty,[6] mentions, however, war vessels, and describes the transport of the stone for the pyramid Shanefer, of the king Merenra, to have been made by six boats of burthen, three towing-boats, three boats of eight lengths, and one war-vessel. This officer also states that he made for the purpose

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kind, made of separate pieces tied together, and hauling up like a Venetian blind, is in the Liverpool Museum, and shows that such sails were actually employed.—S. B.]

[1] Diodor. i. 55.

[2] Herodot. ii. 102.

[3] Plin. vii. 56.

[4] Clemens thinks Atlas, the Libyan, to have been the first who built ships and ventured on the sea.

[5] These two names are both written Ames in the hieroglyphics, but I use them thus by way of distinction, and in accordance with Manetho.

[6] 'Records of the Past,' ii. 7.

a boat of burthen 60 cubits, or rather more than 90 feet long, and 30 cubits, or 35 feet broad, in 17 days—a very rapid construction. Besides galleys, *mens'*, there were sacred barges, the repairs of which at the time of the 18th Dynasty are mentioned in the papyri. These were to be executed by means of beams of acacia and cedar. There are also descriptions of barges of acacia, cedar, and other woods, placed on the Nile by Thothmes III. and Rameses III. The material of the cedar barges came from the Rutennu.—S. B.]

The ingenious Champollion conjectured that some hieroglyphics at Eileithyia proved[1] the inmate of one of the tombs there, called 'Ahmosis, the son of Obschne,' to have been 'chief of the mariners, or rather of the pilots,' who 'entered the naval career in the time of King Ahmosis,' and 'accompanied that monarch, when he went up by water to Ethiopia to impose tribute upon it,' and 'commanded ships under Thoutmosis the First.' If this be true, it confirms what I have before stated respecting the early existence of an Egyptian fleet; and whatever improvement may have been afterwards made in the ships of war, fitted out by Sesostris and other monarchs in the Arabian Gulf and Mediterranean,[2] we have sufficient evidence from the paintings of the tombs at Eileithyia, that in the time of the same Amosis the ordinary travelling boats of the Nile were of a construction far superior to those mentioned by Herodotus.

The construction of the various boats used on the Nile varied according to the purposes for which they were intended. The punts or canoes were either pushed with a pole, or propelled with a paddle;[3] they had neither mast, nor rudder; and many of the small boats, intended merely for rowing, were unprovided with a mast or sails. They were also destitute of the raised cabin, common in large sailing-boats, and the rowers appear to have been seated on the flat deck, which covered the interior from the head to the stern, pushing instead of pulling the oars, contrary to the usual custom in boats of larger dimensions. The absence of a mast did not altogether depend on the size of the boat, since those belonging to fishermen, which were very small, were often furnished with a sail, besides three or four oars;[4] and some large boats, intended for carrying cattle and heavy goods, were sometimes without a mast.

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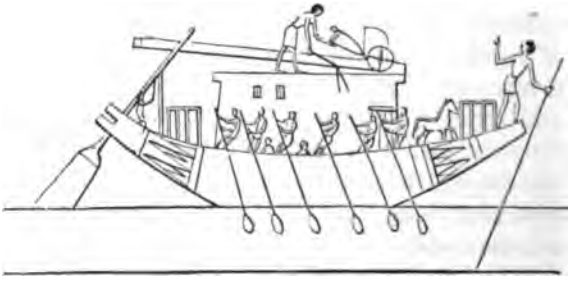
[1] Champollion's twelfth letter from Egypt. ('Lit. Gazette,' p. 617.)
[2] Herodot. ii. 102 and 159. Diodor. i. 68.
[3] Contest of boatmen, woodcut No. 341, *fig.* 1.
[4] Fishing scene, woodcut No. 361, part 1, *a*.

In going up the Nile they used the sail whenever the wind was favourable, occasionally rowing in those parts where the sinuosities of the river brought it too much upon the bows; for it is probable that, like the modern Egyptians, they did not tack in navigating the river; and when the wind was contrary, or during a calm, they generally employed the tow-line, which was pulled by men on shore.

After they had reached the southernmost point of their journey up the stream, the sail was no longer considered necessary; and the mast and yards being taken down, were laid over the top of the cabin, or on a short temporary mast, with a forked summit, precisely in the same way, and with the same view, as at the present day, on board the *cangias*, and other masted rowing boats of Egypt. For as the wind generally blows from the N.W., it seldom happens that the sail can be used in going down the



No. 408. A boat with the mast and sail taken down, having a chariot and horses on board. *Bilcithyia.*

Nile, and in a strong wind the mast and rigging are so great an incumbrance, that the boat is unable to make any way against it with oars.

The heavy boats of burthen, which, from their great size, cannot be propelled by oars, are suffered to retain their masts and sails, and float down the river sideways at the rate of the stream, advantage being taken of the wind whenever the bends of the river allow of it; and the large *germs*, used for carrying corn during the inundation, are only employed when the water is very deep, and are laid up the rest of the year, and covered with matting from the sun. These, therefore, form exceptions to the ordinary boats of the Nile, and may be considered similar to some represented in the sculptures of Alabastron, which are fastened to the shore by several large ropes, and are shown from the size of their cabins, the large awning in front for covering

the goods they carried, and the absence of oars, to have been of unusual dimensions.

In a boat given in the preceding woodcut from a tomb at Eileithyia an error has frequently been made respecting the wheel upon the top of the cabin, which some have supposed to be connected with the sail,[1] in order to enable the yard to traverse with greater facility, or for some such purpose; but on a careful examination of the subject it proves to be part of a chariot, too much defaced by time to be easily perceived at first sight, and the horses belonging to it are seen below in front of the cabin. This circumstance not only shows the comforts with which the Egyptian grandees travelled when going from one part of the country to the other, but affords additional proof of the size of the boats used upon the Nile.

Large boats had generally one, small pleasure-boats two rudders at the stern. The former traversed upon a beam, between two projecting heads, a short pillar or mast supporting it and acting as the centre on which it moved; the latter were nearly the same in principle except that they turned on a bar, or in a ring, by which they were suspended to the gunwale at either side; and in both instances the steersman directed them by means of a rope fastened to the upper extremity. The rudders consisted of a long broad blade and still longer handle, evidently made in imitation of the oars by which they originally steered their boats before they had so far improved them as to adopt a fixed rudder; and in order to facilitate its motion upon the mast or pillar, and to avoid the friction of the wood, a piece of bull's hide was introduced, as is the custom in the modern boats, between the mast and yard.

The oar was a long, round, wooden shaft, to which a flat board, of oval or circular form, was fastened, and it is remarkable that the same oar is used to this day on the Ganges and in the Arabian Gulf. These turned either on thole-pins or in rings, fastened to the gunwale of the boat, and the rowers sat on the deck, on benches, or on low seats, or stood or knelt to the oar, sometimes pushing it forwards, sometimes, and indeed more generally, pulling it, as is the modern custom in Egypt and in most other countries.

At the head of the boat a man usually stood,[2] with a long

[1] The other boat represented in this subject has the sail up, and the same chariot on board. It is, indeed, the same boat, with and without the sail.

[2] Ovid, Met. iii. 617.

pole[1] in his hand, by which he tried at intervals the depth of the water, lest they should run upon any of the numerous sandbanks with which the river abounds, and which, from their often changing at the time of the inundation, could not always be known to the most skilful pilot; a precaution still adopted by the modern boatmen of the Nile.

That the ancient Egyptian boats were built with ribs like those of the present day is sufficiently proved by the rude models discovered in the tombs of Thebes. It is probable that they had very little keel, in order to enable them to avoid the sandbanks, and to facilitate their removal from them when they struck; and indeed, if we may judge from the models, they appear to have been flat-bottomed. The boats now used on the Nile have a very small keel, particularly at the centre, where it is concave; so that when the head strikes they put-to the helm, and the hollow part clears the bank, except in those cases where the impetus is too great, or the first warning is neglected.

The sails of the ancient boats appear to have been always square, with a yard above and below, in which they differ from those now adopted in Egypt. The only modern boats with square sails are a sort of lighter, employed for conveying stones from the quarries to Cairo and other places, and these have only a yard at the top. All other boats have *latine* or triangular-shaped sails, which, in order to catch the wind when the Nile is low, are made of immense size; for unless they reach above its lofty banks they are often prevented from benefiting by a side wind at that season of the year; but the number of accidents which occur are a great objection to the use of such disproportionate sails.

The cabins of the Egyptian boats were lofty and spacious; they did not, however, always extend over the whole breadth of the boat, as in the modern cangias, but merely occupied the centre; the rowers sitting on either side, generally on a bench or stool. They were made of wood, with a door in front, or sometimes on one side, and they were painted within and without with numerous devices, in brilliant and lively colours.[2] The same custom continued to the latest times, long after the conquest of the country by the Romans; and when the Arabs invaded Egypt in 638, under Amer, the general of the Caliph

[1] The *middree* of the Arabs; the *contus*, or *pertica*, of the Romans.
[2] Plate XIII. [Virgil, Georg. iv. 289:
'Et circum pictis vehitur sua rura faselis.'—G. W.]

Omer, one of the objects which struck them with surprise was the gay appearance of the painted boats of the Nile.

The lotus was one of their favourite devices, as on their furniture, the ceilings of rooms, and other places, and it was very common on the blade of the rudder, where it was frequently repeated at both ends, together with the eye. But the place considered peculiarly suited to the latter emblem was the head or bow of the boat;[1] and the custom is still retained in some countries to the present day. In India it is very generally adopted; and we even see the small barques which ply in the harbour of Malta and other parts of the Mediterranean, and even as far north as the Bay of Cadiz, bearing the eye on their bows, in the same manner as the boats of ancient Egypt; and the ancient Greeks used this device on their boats, shields, and in other places. Many instances are found on the vases of Italy, the work of Greek colonists settled in that country.

They do not appear to have had anything like the *aplustre* of the Romans, an ornament fixed to the stern, and sometimes to the prow, on which a staff was erected, bearing a ribbon or flag; but streamers were occasionally attached to the pole of the rudder, and a standard was erected near the head of the vessel.[2] The latter was generally a sacred animal;[3] a sphinx, or some emblem connected with religion or royalty, like those belonging to the infantry before described; and sometimes the top of the mast bore a shrine of feathers, the symbol of the deity to whose protection they committed themselves during their voyage. [Sacred boats or barges had generally the head and collar of the deity to whom they were sacred, made of bronze, attached to them: thus the boats or arks of Amen-ra had the ram's head surmounted by a disk and the collar, *us*χ; those of Isis, the head and collar of the goddess.—S. B.]

There is a striking resemblance, in some points, between the boats of the ancient Egyptians and those of India: the form of the stern, the principle and construction of the rudder, the cabins, the square sail, the copper eye on each side of the head, the line of small squares at the side, like false windows,[4] and the shape of the boats used on the Ganges, forcibly call to mind those of the Nile, represented in the paintings of the Theban tombs.

[The war-galleys, which belong to this section, have already

[1] [Some have supposed the eye was only on the boats of the dead.—G. W.]

[2] Plate XIII., boats with coloured sails.

[3] Perhaps answering to the παράσημον of the Greeks, though not at the prow itself.

[4] Woodcut No. 411.

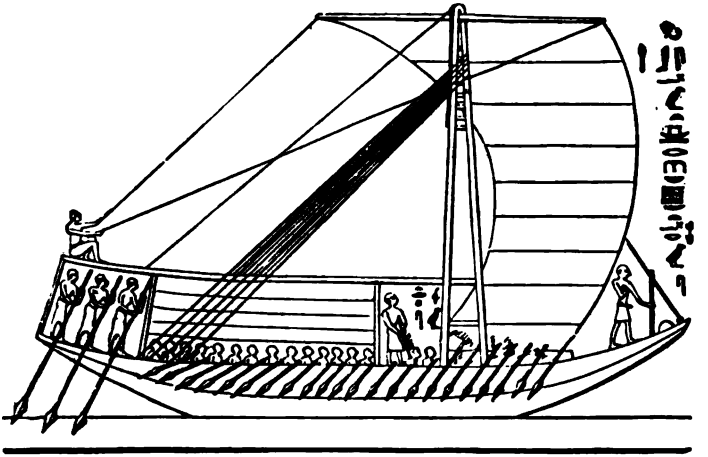
been described in Chapter III., and do not appear on the monuments till the reign of Rameses III., the first monarch whose fleet is represented upon the sculptures. In their construction they offer a considerable resemblance to the biremes of Assurbanipal, seen on the monuments of Kouyunjik; but they are never seen with more than one bank of oars, although the use of the ship of war is as old as the time of the 6th Dynasty, when they were sent down the Nile for the purpose of convoying stone and other materials from Nubia, and escorting the ships of burthen then destined to bring these things to Lower Egypt. It would indeed appear that even at that early time the sail had come into use, and it was continued till a later time. At the period of the 20th Dynasty, the war-galley had been considerably modified. The prow has the introduction of a brazen head, like the rostrum

No. 409. War-galley; the sail being pulled up during the action. Thebes.

a, raised forecastle, in which the archers were posted. *c*, another post for the archers, and the pilot, *d*. *e*, a bulwark, to protect the rowers. *f*, slinger, in the top.

of the Roman galley, and the sides have high raised bulwarks to protect the crew from boarding assaults or the effect of arrows. The Phœnician galley had the bucklers of the soldiers hung outside the bulwarks to afford additional protection to the crew, when not going into action; and the Egyptians, in going into action, stationed an archer at the maintop or crow's nest, and appear from the raising of the sail to have depended chiefly on the effects of ramming by aid of the rowers to propel the prow against a hostile vessel. In the above woodcut it will be seen that the vessel is full of captives as well as soldiers, showing the humanity of the Egyptians. These captives are natives of the race of the Pulusatu, the supposed Pelasgi or

Philistines. The war-vessel (No. 409) had twenty oars, but it is probable that all are not represented, and galleys with as many as fifty-two oars appear at the time of the Pyramids. For these larger galleys the rudder, *hem*, required as many as six men. The galleys, however, which the queen Hasheps or Hatasu sent to Pount had only thirty oars. These vessels were, as at the present day, named; and those in which Aahmes son of Abna embarked during the war against the Shepherds were called 'the Calf,' 'the North,' and 'the Memphian sunrise.' These ships of war of the enemies of the Egyptians had the head of a swan, and, like the Egyptian galleys, had two decks. Besides the war-galleys, there were galleys



Large galley of 44 oars with sail, apparently made of the papyrus, a double mast, and many rowers. No. 410. *In a tomb at Kom el Ahmar, above Minieh.*

without masts or sails. The fleet of Hasheps had one-decked galleys or barges with seats or shrines, their prows and sterns ornamented with figures of Harmachis, lotus-flowers, heads of Isis and the cow of Athor, Mentu-ra, and the Ibex. In some of these there was no covering,[1] so that the crew must have slept in cabins below, indicated by the ports. The rower stood or sat, and the whip seems to have been applied. A small galley of older period has an awning supported by a pole, to protect the rowers from the heat of the sun.[2] In all these larger galleys the look-out was kept by a pilot or captain, who had a stick or wand or held a sceptre. With the wand he sounded the depths. The

[1] Duemichen, 'The Fleet of an Egyptian Queen;' London, 1868, Taf. ii.–v.
[2] Ibid. Taf. xxv. 2, 11.

boats of burthen either had no sails or else lowered their masts and yards; they carried these supported on poles, to cover the rowers; they often had cabins or nettings for the transport of objects. Sometimes four oars were lashed to the neck of a cow placed in the prow, to aid or as a substitute for rowers probably on the return voyage down the Nile with the crew.

The galleys with sails, not for the purposes of war, were all much upon the same plan; they never had more than one mast, like a ladder, and one sail, and were with or without a man's cabin, as the case might be, placed abaft the mast. The sail was generally raised and turned from the deck, by lines to the ends of the yard, by a man seated above the cabin: occasionally men hauled from the lower yard. They were rarely braced. Sometimes the masts were lowered. The prows also often terminated in the heads of animals, like the war-galleys. The greater boats of this kind had ornamented awnings of diapered cloth or basket-work. They resembled our yachts. The smaller boats of burthen were the same as our barges, and it is remarkable to find that, as in our barges, women occasionally steered,[1] or accompanied the master of the boat. These barges were called *uskh*, which means 'broad,' as if the war-galleys, *mensh*, were long.

The smaller boats were called *bari*, and were used for general purposes, but contained fewer rowers, sometimes only one person; they seem to have principally been made of papyrus. There were also tow boats, which were drawn along the banks of the river and canals by gangs of sailors or peasants, but these were perhaps only occasionally required, and the boat generally propelled by the oar.

To these smaller boats pertained those which acted as gondolas of the dead. The mummy was laid on a bier, having over it a baldequin or canopy, and, besides a few sailors, carried the mourners and priests. Various other terms were applied to different boats, as the *seket* and *at* to the boat of the sea.

The sacred barques or barges were paraded at certain festivals, and carried by priests on their shoulders by means of a stand and poles; many representations of which occur on the sculptures. The description of one thus exhibited in the hypostyle hall of Karnak, dedicated by Seti I. to the god Amen-ra, runs thus: "It was gilded with foreign gold and inlaid with precious stones, and ornamented with lapis-lazuli. It illuminated, like

[1] Duemichen, 'The Fleet of an Egyptian Queen,' Taf. xxvii. 7, 9.

the sunrise, the river by its splendour. It was hailed on its passage when it returned to Thebes."

In the coffin of the Queen Aah-hetp of the 18th Dynasty a remarkable model of a galley was found, made of solid gold, with silver rowers, having in the centre a person holding a hatchet and curved stick; a steersman, who guided the vessel with a rudder; and a boatswain, who, standing up, directed by a song the keeping time of the oars. The galley was placed on a car of four wheels, the oldest instance of the employment of so many, and showing how the boats were shipped.[1] In some instances, a man with a trumpet stationed in the prow gave a signal of the advance, or else spoke through it to other boats to keep out of the way.[2]

The names and various parts of a boat are described in the 99th chapter of the 'Ritual.'[3] They are as follows: the boat itself, *maχen;* the pole, *mena;* the keel, *χerp;* the prow, *haut;* the hold, *apt;* the mast, *χa;* the lower deck, *ann. t ḳar;* the scuttle-hole, *buta;* the sail, *huta;* the haulyards, *s'et tut;* the pump, *matábu;* the planks or pegs, *ukai;* the seat or deck, *sars;* the rudder, *hen;* the keel, *tep.*—S. B.]

There is no instance of a boat with a rudder at both ends, said to have been used by some ancient nations,[4] nor do we find them provided with more than one mast and a single sail; in which respect they resembled those of the Greeks at the period of the Trojan war.[5] Sometimes the single rudder, instead of traversing in a groove or hollow space, merely rested on the exterior of the curved stern, and was suspended by a rope or bands; but that imperfect method was confined to boats used in religious ceremonies on the river, an instance of which may be seen in the model preserved at Berlin, as well as in the paintings of Thebes.

This model, which is very curious, shows the position of the rowers, the arrangement of the mast and yard when taken down, the place of the pegs and mallet for fastening the boat to the shore, and of the landing plank, which were always kept in readiness, as at the present day, in the bows, and were under the surveillance of the man stationed at the prow to report and fathom the depth of the water; it also shows that the boat was

[1] Pierret, 'Dict. d'Archéol. Égypt.,' p. 87.

[2] Duemichen, 'The Fleet of an Egyptian Queen,' Taf. xxv. 6.

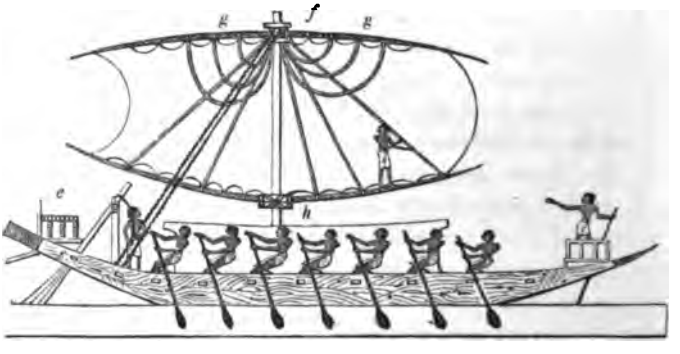
[3] Lepsius, 'Todtenbuch,' xxxv. and xxxvi. c. 99, l. 6, and foll.

[4] Tacit. de Mor. Germ. 44, and Ann. ii. 6.

[5] Homer, Od. E, 254.

decked, and that the cabin did not extend over the whole breadth, which is in perfect accordance with the sculptures, representing the pleasure-boats of the Nile, and those of their funeral ceremonies. In some boats of burthen, the cabin, or raised magazine, was broader, reaching probably from one side to the other, and sufficiently large to contain cattle, horses, and numerous stores.[1] Unlike the modern Egyptians, they paid great attention to the cleanliness of their boats, the cabins and decks being frequently washed and swept, and we find the Theban artists thought it of sufficient importance to be indicated in the sculptures.

Herodotus states that the mast was made of the acanthus, the *Acacia*, or *Mimosa Nilotica*; but as the trunk and limbs of this tree are not sufficiently long or straight, it is evident that the historian was misinformed; and we may readily conceive that they preferred the fir, with which they were well acquainted,[2]



Boat of the Nile; showing how the sail was fastened to the yards, and the nature of the rigging.
No. 411. *g*, yard. *h*, mast. *f*, hole for ropes to haul up sail. *e*, forecastle. Thebes.

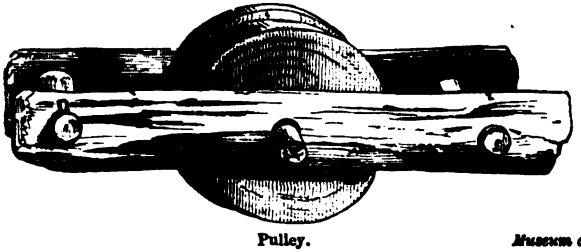
great quantity of the wood being annually imported into Egypt from Syria. The planks, the ribs, and the keel were of the acacia, which, from its resisting the effect of water for a length of time, was found, says Pliny,[3] well adapted for this purpose, as is fully proved by modern experience. The foot of the mast was let into a strong beam, which crossed the whole breadth of the boat; it was supported by and lashed to a knee, rising to a considerable height before it; and the many stout stays fastened at the head, stern, and sides, sufficiently secured it, and compensated for the great pressure of the heavy yards and sail it carried. [The braces and stays were fastened to the gunwale, as in the modern

[1] Woodcut No. 407. [2] Plin. xvi. 40. [3] Ibid. xiii. 9.

boats of the Nile, which agrees with the description of Herodotus, that other people fasten the ropes, &c., on the outside, the Greeks on the inside of their boats.[1]

I have observed that in ships of war the yard was allowed to remain aloft after the sail had been reefed; but in the boats of the Nile, which had a yard at the top and bottom of the sail, as soon as it was furled, they lowered the upper yard, and in this position it remained until they again prepared for their departure. To loosen the sail from the lower yard must have been a tedious operation, if it was bound to it with the many lacings represented in some of the paintings; but in these cases it may have been folded up between the two yards as soon as the upper one was lowered; the whole being lashed together by an outer rope.

It is uncertain whether they used pulleys for raising and lowering the yards, or if the halliards merely passed through a dead-sheave-hole at the top of the mast.[2] The yards were evi-



No. 412. Pulley. *Museum at Leyden.*

dently of very great size and of two separate pieces, scarfed or joined together at the middle,[3] sometimes supported by five or six lifts, and so firmly secured that men could stand or sit upon them while engaged in arranging the sail; and from the upper yard were suspended several ropes, resembling the *horses* of our square-rigged ships,[4] and perhaps intended for the same purpose when they furled the sail. The Egyptians, however, were not ignorant of the pulley; and I am inclined to believe they introduced it in the rigging of their boats; though, owing to their imperfect style of drawing, it is not indicated; and one has actually been found in Egypt, and is now in the Museum at Leyden. It is, however, of uncertain date, and was apparently intended for drawing water from a well. The sides are of *athul* or tamarisk

[1] Herodot. ii. 36.
[2] Woodcut No. 412.
[3] Woodcut No. 411, *h*.
[4] Woodcut No. 411, *g g*.

wood,[1] the roller of fir; and the rope of *leef* or fibres of the date-tree, which belonged to it, was found at the same time.

Many of the sails were painted with rich colours,[2] or embroidered with fanciful devices, representing the phœnix, flowers, and various emblems; some were adorned with checks, and others were striped, like those of the present day. This kind of cloth, of embroidered linen, appears to have been made in Egypt expressly for sails, and was bought by the Tyrians[3] for that purpose; but its use was confined to the pleasure-boats of the grandees, or of the king himself, ordinary sails being white; and the ship, says Pliny,[4] in which Antony and Cleopatra went to the battle of Actium, was distinguished from the rest of the fleet by its purple sails, which were the peculiar privilege of the admiral's vessel. The same writer states that the custom of dyeing the sails of ships was first adopted in the fleet of Alexander the Great, when navigating the Indus; but that it was practised long before in Egypt is evident from the paintings at Thebes, which represent sails richly ornamented with various colours, in the time of the third Rameses, nine hundred years previous to the age of Alexander.

The devices with which they were painted or embroidered depended on fancy, and the same monarch had ships with sails of different patterns. Of all these the phœnix appears to have been the most appropriate emblem, if, as is stated by Horapollo,[5] it indicated 'the return of a traveller who had long been absent from his country;' and it is probable that the boats used in sacred festivals upon the Nile were decorated with appropriate symbols, according to the nature of the ceremony, or the deity in whose service they were engaged. The edges of the sail were furnished with a strong hem or border, also neatly coloured, serving to strengthen it and prevent an injury, and a light rope was generally sewed round it for the same purpose.

Some of the Egyptian vessels appear to have been of very great size.[6] Diodorus[7] mentions one of cedar wood, dedicated by Sesostris to the god of Thebes, 280 cubits, or 420 feet, long; another built by Caligula in Egypt, to transport one of the

[1] *Tamarix orientalis.*

[2] The sails of our own vessels, in the fifteenth century, had coats of arms emblazoned upon them, if we may trust the official seals of the admirals.

[3] Ezek. xxvii. 7. *Vide suprà*, p. 213, note [4].

[4] Plin. xix. 1.

[5] Horapoll. Hierogl. lib. i. c. 35.

[6] Conf. Hor. 1 Epod. i. 1, referring to the large ships of M. Antony.

[7] Diodor. i. 57.

obelisks to Rome, carried 120,000 *modii* (pecks) of lentils as ballast;[1] and Ptolemy Philopator built one of 40 benches of oars, which was 420 feet long, and 72 from the keel to the top of the poop, and carried 400 sailors, besides 4000 rowers, and near 3000 soldiers.[2] Athenæus mentions this vessel of Philopator, and says it had 40 benches, was 280 cubits (420 feet) long, and 38 broad; the poop stood 53 cubits above the water. It had four rudders, 30 cubits long; the longest oars were 38 cubits, and were poised by lead at the handles, so as to make them manageable, &c. It had more than 4000 rowers, 2850 marines, besides a crowd of other men. He also mentions one on the Nile, built by Philopator, of a large size.

Of the origin of navigation no satisfactory conjecture can be offered, nor do we know to what nation to ascribe the merit of having conferred so important a benefit on mankind. It is evident that the first steps were slow and gradual, and that the earliest attempts to construct vessels on the sea were rude and imperfect. Ships of burthen were originally mere rafts, made of the trunks of trees bound together, over which planks were fastened, which Pliny states to have been first used on the Red Sea;[3] but he is wrong in limiting the era of ship-building to the age of Danaus, and in supposing that rafts alone were employed until that period. Rafts were adopted, even to carry goods, long after the invention of ships, as they still are for some purposes on rivers and other inland waters; but boats made of hollow trees and various materials, covered with hides or pitch, were also of very early date, and to those may be ascribed the origin of planked vessels. Improvement followed improvement; and in proportion as civilisation advanced, the inventive genius of man was called forth to push on an invention[4] so essential to those communities where the advantages of commerce were understood, and numerous causes contributed to

[1] Plin. xvi. 40; and xxxvi. 9.

[2] Plut. Life of Demetrius. Athenæus Deipn. lib. v. p. 203. Pliny (vii. 56) says it had fifty benches; and he mentions another of Ptolemy Philadelphus with forty.

[3] Plin. vii. 57. The Phœnicians were supposed to have come from the Red Sea, and to have settled on the coasts of the Mediterranean. (Herodot. i. 1. Strabo, lib. i. p. 29.)

[4] There is a very early statue of a royal naval constructor of the time of the Pyramids, apparently as old as the 4th Dynasty, made of granite, and in the British Museum. ('Guide to the Egyptian Galleries, Vestibule,' &c., p. 19, No. 70*a*.) He is represented seated on a stool or chair; in his left hand he holds the boat-builder's adze, the blade of which is over his left shoulder. He held the high office or position of *suten rex*, or 'royal relative.'—S. B.

the origin of navigation, and the construction of vessels for traversing the sea.[1]

Curiosity may have prompted those who lived on the coast to visit a neighbouring island; or the desire of conquest, to cross a narrow channel, to invade a foreign land, as Pliny observes in the case of the Trojans. But it is more probable that the occupation of the fisherman was the principal cause and promoter of this useful art: those who at first employed themselves merely on a sheltered river venturing at length in the same boat upon the sea, and, having acquired confidence from habit, extending their excursions along the coast; for it was long before the art of navigation was so far improved that the boldest mariner dared to trust his vessel out of sight of land.

The first sea-voyages of which we have any direct notice are those undertaken by the Egyptians at the early period when they led colonies into Greece; but the people to whom the art of navigation was most indebted, who excelled all others in nautical skill, and who carried the spirit of adventure far beyond any contemporary nation, were the Phœnicians; and those bold navigators even visited the coast of Britain in quest of tin.

The fleets of Sesostris and the third Rameses certainly date from a very remote age, and some Phœnician sailors sent by Necho[2] on a voyage of discovery to ascertain the form of the African continent, actually doubled the Cape of Good Hope, about twenty-one centuries before the time of Bartholomew Diaz and Vasco da Gama; but it was not till the discovery of the compass[3] that navigation became perfected, and the uncertain method of ascertaining the course by the stars[4] gave place to the more accurate calculations of modern times.

After the fall of Tyre and the building of Alexandria, Egypt

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[1] The Egyptian boats had often a symbolic eye, that of Horus, Tum, or Shu, the principal solar deities of Egypt, painted at the sides, the object of which is unknown. Although under the Pharaohs the war-vessels had only one bank of oars, the invention or use of the double-banked galley, the bireme, by the Phœnicians, at the time of Sennacherib, about B.C. 701, led to the adoption of the trireme, which Necho, B.C. 610, constructed in his dockyards on the Red Sea, and which went through his canal, made wide enough for two to pass one another. The trireme continued to be the war-vessel of Egypt under the Persians and Ptolemies, and formed the Egyptian squadron at Salamis, and the fleet at Actium.—S. B.

[2] Pliny mentions others who performed this voyage (lib. ii. 67).

[3] The Chinese used the compass at a very early period; and Marco Polo probably introduced it from China, about 1290 A.D., twelve years before Gioia of Amalfi, its supposed inventor. The loadstone (*Heraclius lapis*) was different from the *Magnetis* of Theophrastus (On Stones, 73), as is explained by Hesychius. Plutarch says the loadstone was mentioned by Manetho (de Isid. s. 62).

[4] Hom. Odyss. ε, 272.

became famous as a commercial country and the emporium of the East: the riches of India, brought to Berenice, Myos-Hormos, and other ports on the Red Sea, passed through it, to be distributed over various parts of the Roman empire; and it continued to benefit by these advantages until a new route was opened to India by the Portuguese, round the Cape of Good Hope.

It is difficult to explain how, at that early period, so great a value came to be attached to tin that the Phœnicians should have thought it worth while to undertake a voyage of such a length, and attended with so much risk, in order to obtain it; even allowing that a high price was paid for this commodity in Egypt and other countries, where the different branches of metallurgy were carried to great perfection. It was mixed with other metals, particularly copper, which was hardened by an alloy of tin, and was employed, according to Homer, for the raised work on the exterior of shields,[1] as in that of Achilles; for making greaves,[2] and binding various parts of defensive armour,[3] as well as for household[4] and ornamental purposes; and, which is very remarkable, the word *kassitéros*, used by the poet to designate it, is the same as the Arabic name *kasdeer*,[5] by which the metal is still known in the East, being probably derived from the ancient Phœnician.

We have no means of ascertaining the exact period when the Phœnicians first visited our coasts in search of tin; some have supposed about the year 400 or 450 before our era: but that this metal was employed many ages previously, is shown from the bronze vessels[6] and implements discovered at Thebes and other parts of Egypt. It cannot, however, be inferred that the mines of Britain were known at that remote period, since the intercourse with India may have furnished the Egyptians with tin; and the Phœnicians probably obtained it from Spain[7] and India, long before they visited those distant coasts, and dis-

[1] Hom. Il. xviii. 565, 574.
[2] Ib. xviii. 612.
[3] Ib. xviii. 474.
[4] No copper vessels have yet been found, even of Roman time, washed with tin, and few only with silver. Several gilt have been met with in Egypt, Greece, and Italy. Dioscorides mentions tinned boilers (lib. i. c. 38). He is supposed to have been physician to Antony and Cleopatra, or to have lived in the time of Nero. (Also Plin. xxxiv. 17, on the tinning of copper vessels.)
[5] It will be observed that the accent in the Greek is over the same part of the word, *κασσιτέρος*. It is, I trust, unnecessary to observe that the ancient Greeks pronounced according to accent, as they now do in Greece, or to point out the origin of those marks.
[6] Bronze is made of copper and tin; brass, of copper and zinc.
[7] The mines of Spain and Portugal produce very little tin. There are some in Saxony and Bohemia. Those of Malacca are very productive.

covered the richness of our productive mines.[1] Ezekiel, indeed, expressly says that the Tyrians received tin, as well as other metals, from Tarshish; which, whether it was situated, as some suppose, in Arabia,[2] or on the Indian coast, traded in the productions of the latter country: and the lamentation[3] of the prophet on the fall of Tyre, though written as late as the year 588 before our era, relates to a commercial intercourse with that place, which had been established, and continued to exist, from a much earlier period.[4]

It is probable that the Phœnicians supplied the Egyptians with this article, even before it was brought from Spain and Britain. The commercial intercourse of the two nations dated from a most remote epoch;[5] the produce and coasts of Arabia and India appear to have been known to the Phœnicians, long before any other people; and some have even supposed that they migrated from the Red Sea to the shores of Syria.[6]

That the productions of India already came to Egypt at the early period of Joseph's arrival in that country, is evident from the spices which the Ishmaelites[7] were carrying to sell there; and the amethysts, hæmatite,[8] lapis-lazuli, and other objects[9] found at Thebes, of the time of the third Thothmes and succeeding Pharaohs, argue that the intercourse was constantly kept up.

The first mention of tin, though not the earliest proof of its use, is in connection with the spoils taken by the Israelites from the people of Midian, in the year 1452 B.C., where they are commanded by Moses to purify 'the gold and the silver, the brass, the *iron*, the *tin*, and the lead,' by passing it through the fire.[10] Its combination with other metals is noticed by Isaiah, in the year 760 before our era, who alludes to it as an alloy mixed with a more valuable substance;[11] and Ezekiel[12] shows that it was used for this purpose in connection with silver.

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[1] In the year 1791 about 3000 tons of tin were taken from the mines of Cornwall, of which 2200 tons were sold in the European market for 72*l.* each, the remaining 800 being sent to India and China at 62*l.* a ton. (Univ. Dict. of Arts and Sciences, Tin.)

[2] Bruce supposed it to be Mokha.

[3] Ezek. xxvii. 12: 'Tarshish was thy merchant by reason of the multitude of all kind of riches; with silver, iron, *tin*, and lead, they traded in thy fairs.'

[4] The gold of Ophir being mentioned by Job is one of many proofs of an early intercourse with India. (Job xxii. 24.)

[5] Herodot. i. 1.

[6] Ibid.

[7] Gen. xxxvii. 25.

[8] This kind of iron ore is found also in Spain, Italy, Germany, and England.

[9] I might, perhaps, add siderite.

[10] Numb. xxxi. 22. Tin in Hebrew is called *bedeel*, בְּדִיל.

[11] Isaiah i. 25: 'I will . . . . purge away thy dross, and take away all thy tin.'

[12] Ezek. xxii. 18, 20: 'They are brass,

Strabo, Diodorus, Pliny, and other writers, mention certain islands discovered by the Phœnicians, which, from the quantity of tin they produced, obtained the name *Cassiterides;* and are supposed to have been the cluster now known as the Scilly Isles, and to have included part of the coast of Cornwall itself.[1] The secret of their discovery was carefully concealed, says Strabo,[2] from all other persons, and the Phœnician vessels continued to sail from Gades, the present Cadiz, in quest of this commodity, without its being known from whence they obtained it; though many endeavours were made by the Romans at a subsequent period to ascertain the secret, and to share the benefits of this lucrative trade.

So anxious, indeed, were the Phœnicians to retain their monopoly, that on one occasion when a Roman vessel pursued a trader bound to the spot, the latter purposely steered his vessel on a shoal, preferring to suffer shipwreck, provided he involved his pursuers in the same fate, to the disclosure of his country's secret. His artifice succeeded: the Roman crew, exposed to additional risk in consequence of being unprepared for the sudden catastrophe, were all lost with their foundered vessel, and the Phœnician, having the good fortune to escape with his life, was rewarded from the public treasury for his devotion and the sacrifice he had made.[3]

Pliny mentions a report of 'white lead,' or tin, being brought from certain islands of the Atlantic; yet he treats it as a 'fable,' and proceeds to state that it was found in Lusitania and Gallicia, and was the same metal[4] known to the Greeks in the days of Homer by the name *kassitéros;*[5] but Diodorus and Strabo, after noticing the tin of Spain and the Cassiterides, affirm that it was also brought to Massilia (Marseilles) from the coast of Britain.[6]

Spain in early times was to the Phœnicians what America at a later period was to the Spaniards; and no one can read the accounts of the immense wealth derived from the mines of that country, in the writings of Diodorus and other authors, without being struck by the relative situation of the Phœnicians and

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and tin, and iron, and lead, in the midst of the furnace; they are even the dross of silver.'

[1] Beckmann and Borlase are also of this opinion.

[2] Strabo, lib. iii. *ad fin.* p. 121.

[3] Ibid.

[4] Beckmann, in his 'History of Inventions' (vol. iv. pp. 10, 20), doubts the *stannum* of Pliny, or the *kassitéros* of Homer, being tin. Pliny's account of *stannum* is obscure.

[5] Plin. xxxv. 16. He places the Cassiterides off the coast of Celtiberia (lib. iv. 22).

[6] Strabo, lib. iii. p. 101, and Diodor. v. 38.

ancient Spaniards, and the followers of Cortes or Pizarro and the inhabitants of Mexico or Peru.

'The whole of Spain,' says Strabo, 'abounds with mines . . . and in no country are gold, silver, copper, and iron in such abundance or of such good quality: even the rivers and torrents bring down gold in their beds, and some is found in the sand:' and the fanciful assertion of Posidonius, regarding the richness of the country in precious metals, surpassed the phantoms created in the minds of the conquerors of America.

The Phœnicians purchased gold, silver, tin, and other metals from the inhabitants of Spain and the Cassiterides by giving in exchange earthenware vessels, oil, salt, bronze instruments, and other objects of little value, in the same manner as the Spaniards on their arrival at Hispaniola; and such was the abundance of silver, that after loading their ships with full cargoes, they stripped the lead from their anchors, and substituted the same weight of silver.[1]

[It is uncertain if tin were known to the Egyptians at the earliest period, for a small curved object, apparently the end of the handle of a tool or weapon, found in one of the air-passages of the great Pyramid, was copper. Other tools recently discovered at Tel el Yahoudeh were also of that metal. There is, however, no doubt about the use of tin in the composition of bronze at an early period; and five objects of the Passalacqua Collection, now at Berlin, analysed by Vauquelin, gave 85 parts of copper, 14 of tin, and about 1 of iron,[2] enough however to show the knowledge of tin or of tin ores, for it is possible that bronze may have been produced from them, and not the pure metal, by the Egyptians. Various metals, indeed, are mentioned in the different texts, papyri, and inscriptions, but it is not quite certain if tin is one of them. A metal or material, perhaps tin,[3] is placed in certain lists of substances, after lead. That it was known in its pure state at a later period is clear from the plates of it engraved with the symbolic eye placed over the flank incisions of a mummy. These when bent give the crepitating sound peculiar to tin.—S. B.]

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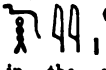
[1] Diodor. lib. v. 35.

[2] Passalacqua, 'Catalogue raisonné,' Paris, 1826, pp. 238, 239.

[3] It is called  *t'eki*, and is mentioned in the great Harris papyrus, amongst the lists of offerings of Rameses III. (pl. 40, 6, l. 14; 'Records of the Past,' vol. vi. p. 69). Some ingots or plates of this metal, leaden coloured, are represented in the tomb of Rekhmara.—S. B.

A strong evidence of the skill of the Egyptians in working metals, and of the early advancement they made in this art, is derived from their success in the management of different alloys; which, as M. Goguet observes,[1] is further argued from the casting of the golden calf, and still more from Moses being able to burn the metal and reduce it to powder—a secret which he could only have learnt in Egypt.[2] It is said in Exodus,[3] that 'Moses took the calf which they had made, and burnt it in the fire, and ground it to powder, and strewed it upon the water, and made the children of Israel drink of it;' an operation which, according to the French *savant*, 'is known by all who work in metals to be very difficult.'

'Commentators' heads,' he adds, 'have been much perplexed to explain how Moses burnt and reduced the gold to powder. Many have offered vain and improbable conjectures; but an experienced chemist has removed every difficulty upon the subject, and has suggested this simple process. In the place of tartaric acid, which we employ, the Hebrew legislator used natron, which is common in the East. What follows, respecting his making the Israelites drink this powder, proves that he was perfectly acquainted with the whole effect of the operation. He wished to increase the punishment of their disobedience, and nothing could have been more suitable; for gold reduced and made into a draught, in the manner I have mentioned, has a most disagreeable taste.'

The use of gold, for jewellery and various articles of luxury, dates from the most remote ages. Pharaoh having 'arrayed'[4] Joseph 'in vestures of fine linen, put a gold chain about his neck;' and the jewels of silver and gold borrowed from the Egyptians by the Israelites[5] at the time of their leaving Egypt (out of which the golden calf was afterwards made[6]) suffice to prove the great quantity of precious metals wrought at that time into female ornaments. It is not from the Scriptures alone that the skill of the Egyptian goldsmiths may be inferred; the sculptures of Thebes and Beni-Hassan afford their additional

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[1] Goguet, 'Origine des Lois, des Arts, et des Sciences,' tome ii. liv. 2, ch. iv. p. 145.

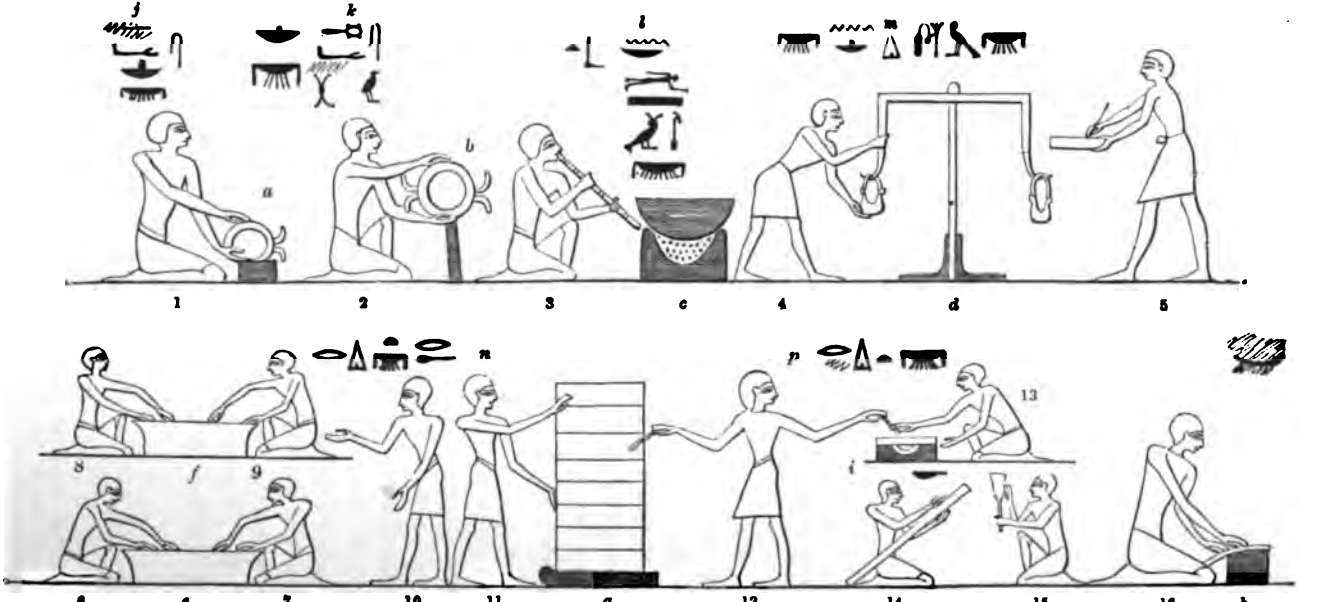
[2] Goguet is wrong in supposing that the smelting of tin is one of the most difficult operations in metallurgy (tome ii. liv. 2, ch. iv. p. 146). Tin melts more readily than lead: the latter requires a heat of 550° Fahr., the former only of 420°.

[3] Exod. xxxii. 20.

[4] This custom of conferring rank by presenting a suitable dress (or *kiseeh*) still continues in the East.

[5] Exod. iii. 22, and xii. 35.

[6] Exod. xxxii. 2, 3.

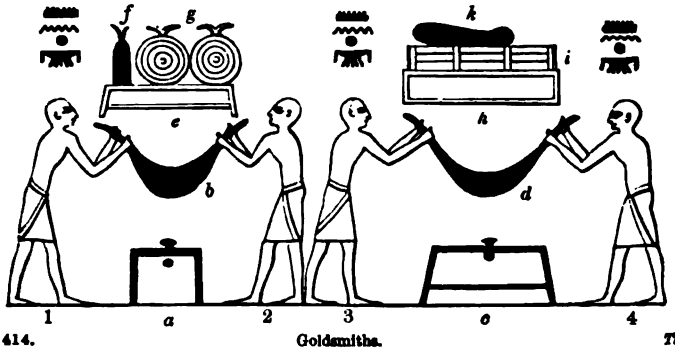


No. 413. Goldsmiths. *Beni-Hassan.*

Figs. 1, 2, making jewellery. 3, blowing the fire for melting the gold. 4, weighing the gold. 5, clerk or scribe. 6, 7, 8, 9, washing gold. 10, superintendent. The remaining part relates to the preparation of the metal before it was worked.

The inscriptions read—*j*, 'works the gold.' *k*, 'works a gold collar.' *l*, 'melts the gold.' *m*, 'gives the gold,' register of the gold. *n*, 'gives gold.' *p*, 'gives gold.'

testimony; and the numerous gold and silver vases, inlaid work, and jewellery, represented in common use, show the great ad-

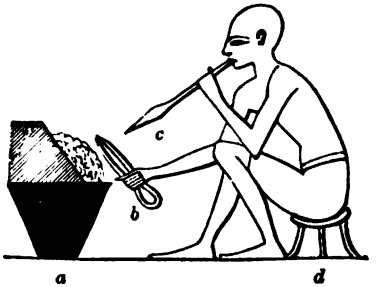


No. 414. Goldsmiths. *Thebes.*

f, *g*, are articles of jewellery. The hieroglyphics read mes-ḫ *neb*, 'goldsmith,' or 'worker in gold.'

vancement they had already made, at a remote period, in this branch of art.

The engraving of gold, the mode of casting it, and inlaying it with stones, were evidently known at the same time; they are mentioned in the Bible,[1] and numerous specimens of this kind of work have been found in Egypt.



Blowpipe, c, and small fireplace with checks to confine and reflect the heat. *Thebes.*
No. 415.

The origin of the sign signifying 'gold' has been happily explained by the ingenious Champollion; as the *bowl*[2] in which the metal was washed, the *cloth* through which it was strained, and the *dropping of the water*, united into one character, at once indicative of the process and the metal.

Much cannot, of course, be expected from the objects found in the excavated tombs to illustrate the means employed in smelting the ore, or to disclose any of the secrets they possessed in metallurgy; and little is given in the paintings, beyond the use of the blowpipe, the forceps,[3] and their mode of concen-

[1] Exod. xxxii. 4. Aaron 'fashioned it with a graving tool, after he had made it a molten calf.' On engraving and setting stones, see Exod. xxviii. 9 and 11.

[2] Or the frame over which the cloth was laid. Woodcut No. 414 *fig. a.* It rather represents a particular kind of 'collar,' called *neb*, the same as the word 'gold.'—S. B.

[3] Bronze forceps, tongs, and tweezers have been found, retaining their spring perfectly.

trating heat, by raising checks of metal round three sides of the fire in which the crucibles were placed. Of the latter, indeed, there is no indication in these subjects, unless it be in a preceding woodcut;[1] but their use is readily suggested, and some which have been found in Egypt are preserved in the Berlin Museum. They are nearly five inches in diameter at the mouth, and about the same in depth, and present the ordinary form and appearance of those used at the present day.

From the mention of earrings and bracelets, and jewels of silver and gold, in the days of Abraham,[2] it is evident that in Asia as well as in Egypt the art of metallurgy was known at a very remote period; and workmen of the same countries are noticed by Homer[3] as excelling in the manufacture of arms, rich vases, and other objects inlaid or ornamented with metals. His account of the shield of Achilles[4] proves the art of working the various substances of which it was made—copper, tin, gold, and silver—to have been well understood at that time; and the skill required to represent the infinity of subjects he mentions was such as no ordinary artisan could possess; and unless similar works had been already made, the poet would not have ventured on the description he has given.

The ornaments in gold found in Egypt consist of rings, bracelets, armlets, necklaces, earrings, and numerous trinkets belonging to the toilet; many of which are of the early times of

1 2 3

No. 416. Golden baskets represented in the tomb of king Rameses III. Thebes.

Usertesen I. and Thothmes III., the contemporaries of Joseph and of Moses. Gold and silver vases, statues, and other objects of gold and silver, of silver inlaid with gold, and of bronze inlaid with the precious metals, were also common at the same time; and besides those manufactured in the country from the produce of their own mines,[5] the Egyptians exacted an annual tribute

[1] Woodcut No. 413, *a*.

[2] Gen. xxiv. 47, 53.

[3] Hom. Il. X. 741. A silver cup, the work of the Sidonians, Od. Δ, 618, &c. *Vide* Il. B 872, H 236, the armour of Glaucus.

[4] Hom. Il. xviii. 474.

[5] Diodorus mentions the silver mines of Egypt, which produced 3200 myriads of minæ, but I am not aware of their position. Diodor. i. 49, and *infra*, p. 239 and foll.

from the conquered provinces of Asia and Africa, in gold and silver, and in vases made of those materials.

I have frequently had occasion to notice the elegance of the Egyptian vases, whether of gold or other materials. Many other objects were equally graceful in their form and the devices which ornamented them; and among these I may cite the golden baskets in the tomb of Rameses, which in their shape call to mind our European bread-baskets.

[Various objects of gold are described in the Egyptian inscriptions, and the word 'gold' appears at the earliest period, and great quantities must have been used at the time of the 12th Dynasty. The tributes of the 18th Dynasty also record and represent the quotas or presents of gold sent by the Ethiopians and Asiatic nations to Egypt. The gold which Rameses III. gave to the principal cities and temples of Egypt is detailed in the great Harris papyrus: the gold is classed as gold ore, gold of the balance, best gold, gold of the second quality, and white gold (apparently electrum, distinguished from silver, which is afterwards mentioned).[1] The gold was also used for gold crowns, collars, rings, and other ornaments or decorations; silver was chiefly employed for vases. The gold principally came from Kush or Æthiopia; the silver from Asia.—S. B.]

At Beni-Hassan the process of washing the ore, smelting, or fusing the metal with the help of the blow-pipe. and fashioning it for ornamental purposes, weighing it, taking an account of the quantity so made up, and other occupations of the goldsmith, are represented; but, as might be supposed, these subjects merely suffice, as they were intended, to give a general indication of the goldsmith's trade, without attempting to describe the means employed.[2]

The gold mines of Egypt, though mentioned by Agatharcides and later writers, and worked even by the Arab caliphs, long remained unknown, and their position has only been ascertained a few years since by M. Linant and Mr. Bonomi. They lie in the Bisháree desert, or, as Edréesee and Aboolfeda call it, the land of Bigá[3] or Bojá, about seventeen or eighteen days' journey to the south-eastward from Derow, which is situated on the Nile, a little above Kom Ombo, the ancient Ombos.

[1] 'Records of the Past,' vi. 21 and foll.; viii. 6 and foll.

[2] Woodcut No. 413.

[3] Bigah بجه or Begga is the name which the Bisháreen Arabs give themselves.

Those two travellers met with some Cufic funeral inscriptions there, which from their dates show that the mines were worked in the years 339 A.H. (951 A.D.) and 378 A.H. (989 A.D.); the former being in the fifth year of the Caliph Mostukfee Billah, a short time before the arrival of the Fatemites in Egypt, the latter in the fourteenth of El Azeéz, the second of the Fatemite dynasty.

They continued to be worked till a much later period, and were afterwards abandoned, the value of the gold, as Aboolfeda states,[1] barely covering the expenses; nor did Mohammed Ali, who sent to examine them and obtain specimens of the ore, find it worth while to re-open them.

The matrix is quartz; and so diligent a search did the Egyptians establish throughout the whole of the deserts east of the Nile for this precious metal, that I never remember to have seen a vein of quartz in any of the primitive ranges there, which had not been carefully examined by their miners; certain portions having been invariably picked out from the fissures in which it lay, and broken into small fragments. At a spot near the quarries of *breccia verde*, on the road from Coptos to Kossayr, the working of quartz veins has been carried on to such an extent and on so grand a scale, the houses of the miners are so numerous, the consequence of the place so strongly argued by the presence of a small stone temple bearing the name and sculptures of Ptolemy Euergetes I., and the length of time the workmen inhabited it so distinctly proved by the large mounds of broken pottery found there, from which the valley has derived the name of Wadee Foäkheer, that I cannot suppose their labours to have been confined to the mere cutting of *tazzi*, sarcophagi, fonts, vases, columns, and similar objects from the breccia quarries, which, too, are distant three miles from this spot; and the number of 1320 huts, which I counted in the different windings of the Wadee Foäkheer, containing far more workmen than the quarries would require, appears conclusive respecting the object they had in view, and suggests that they had succeeded in finding gold here also, though probably in far less quantities than in the mines of the more southerly district.

The gold mines are said by Aboolfeda to be situated at El Allaga, or Ollagee; but Eshuranib, or Eshuanib, the principal

[1] Aboolfeda's 'Description of Egypt,' p. 68.

place, is about three days' journey beyond Wadee Allaga, according to Mr. Bonomi, to whom I am indebted for the following account of the mines:—'The direction of the excavations depends,' as Diodorus states, 'on that of the strata in which the ore is found, and the position of the various shafts differ accordingly. As to the manner of extracting the metal, some notion may be given by a description of the ruins at Eshuranib, the largest station, where sufficient remains to explain the process they adopted. The principal excavation, according to M. Linant's measurement, is about 180 feet deep: it is a narrow oblique chasm, reaching a considerable way down the rock. In the valley, near the most accessible part of the excavation, are several huts, built of the unhewn fragments of the surrounding hills, their walls not more than breast high, perhaps the houses[1] of the excavators or the guardians of the mine; and separated from them by the ravine or course of the torrent is a group of houses, about 300 in number, laid out very regularly in straight lines. In those nearest the mines lived the workmen who were employed to break the quartz into small fragments, the size of a bean, from whose hands the pounded stone passed to the persons who ground it in hand-mills, similar to those now used for corn in the valley of the Nile, made of a granitic stone, one of which is to be found in almost every house at these mines, either entire or broken.

'The quartz thus reduced to powder was washed on inclined tables, furnished with two cisterns, all built of fragments of stone collected there; and near these inclined planes are generally found little white mounds, the residue of the operation. Besides the numerous remains of houses in this station, are two large buildings, with towers at the angles, built of the hard blackish granitic, yet luminous, rock that prevails in the district. The valley has many trees, and in a high part of the torrent bed is a sort of island, or isolated bank, on which we found many tombstones, some written in the ancient Cufic character, very similar to those at E'Souán.'

Such is the description Mr. Bonomi has been kind enough to send me of the gold mines of Allaga; and as Diodorus's account of the mining operations, and the mode of extracting the gold, is highly interesting, I shall introduce some extracts from his work.

The historian states that those who worked in the mines were

[1] Similar huts are met with at all the quarries and mines of these deserts.

principally captives taken in war, and men condemned to hard labour for crimes, or in consequence of offences against the Government. They were bound in fetters, and obliged to work night and day; every chance of escape being carefully obviated by the watchfulness of the guards, who, in order that persuasion might not be used to induce them to relax in their duty, or feelings of compassion be excited for the sufferings of their fellow-countrymen, were foreign soldiers, ignorant of the Egyptian language.

Whether this system was introduced by the Ptolemies and the latter Pharaohs, or was always carried on in the earliest times, it is difficult to say, Diodorus confining his remarks to the state of the mines during his own time. 'The soil,' says the historian, 'naturally black,[1] is traversed with veins of marble[2] of excessive whiteness, surpassing in brilliancy the most shining substances; out of which the overseers cause the gold to be dug by the labour of a vast multitude of people; for the kings of Egypt condemn to the mines notorious criminals, prisoners of war, persons convicted by false accusations or the victims of resentment.[3] And not only the individuals themselves, but sometimes even their whole family, are doomed to this labour, with the view of punishing the guilty, and profiting by their toil.

'The vast numbers employed in these mines are bound in fetters, and compelled to work day and night without intermission, and without the least hope of escape, for they set over them barbarian soldiers, who speak a foreign language, so that there is no possibility of conciliating them by persuasion, or the kind feelings which result from familiar converse.

'When the earth containing the gold is hard, they soften it by the application of fire; and when it has been reduced to such a state that it yields to moderate labour, several thousands (myriads) of these unfortunate people break it up with iron picks. Over the whole work presides an engineer, who views and selects the stone, and points it out to the labourers. The strongest of them, provided with iron chisels, cleave the marble shining rock by mere force, without any attempt at skill; and in excavating the shafts below ground they follow the direction of the shining stratum without keeping in a straight line.

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[1] The rock in which the veins of quartz run is an argillaceous schist.

[2] Diodor. iii. 11. He evidently alludes to the quartz, which is the matrix of the ore.

[3] More probably of false accusations.

'In order to see in these dark windings they fasten lamps to their foreheads, having their bodies painted, sometimes of one and sometimes of another colour, according to the nature of the rock; and as they cut the stone it falls in masses on the floor, the overseers urging them to the work with commands and blows. They are followed by little boys, who take away the fragments as they fall, and carry them out into the open air. Those who are above thirty years of age are employed to pound pieces of the stone, of certain dimensions, with iron pestles in stone mortars, until reduced to the size of a lentil. It is then transferred to women and old men, who put it into mills arranged in a long row, two or three persons being employed at the same mill, and it is ground until reduced to a fine powder.

'No attention is paid to their persons; they have not even a piece of rag to cover themselves; and so wretched is their condition, that every one who witnesses it deplores the excessive misery they endure. No rest, no intermission from toil, are given either to the sick or maimed: neither the weakness of age nor women's infirmities are regarded; all are driven to their work with the lash, till, at last, overcome with the intolerable weight of their afflictions, they die in the midst of their toil. So that these unhappy creatures always expect worse to come than what they endure at the present, and long for death as far preferable to life.

'At length the masters take the stone thus ground to powder, and carry it away to undergo the final process. They spread it upon a broad table a little inclined, and, pouring water upon it, rub the pulverised stone until all the earthy matter is separated, which, flowing away with the water, leaves the heavier particles behind on the board. This operation is often repeated, the stone being rubbed lightly with the hand: they then draw up the useless and earthy substance with fine sponges, gently applied, until the gold comes out quite pure. Other workmen then take it away by weight and measure, and putting it with a fixed proportion of lead, salt, a little tin, and barley bran into earthen crucibles well closed with clay, leave it in a furnace for five successive days and nights; after which it is suffered to cool. The crucibles are then opened, and nothing is found in them but the pure gold, a little diminished in quantity.

'Such is the method of extracting the gold on the confines of Egypt, the result of so many and such great toils. Nature indeed, I think, teaches that as gold is obtained with immense

labour, so it is kept with difficulty, creating great anxiety, and attended in its use both with pleasure and grief.'

[At the time of the 12th Dynasty the search for gold and the working of the mines is already recorded. Ameni, a prince and officer of the reign of Usertesen I., states that he had escorted the gold from the mines to Coptos. Under the 19th Dynasty the mines of Rhedesieh, at a place called the Wady Abbas, had been extensively worked, and an account of them has been discovered on the temple there. Another inscription of importance has been found at Kuban, on the eastern bank of the Nile, opposite to Dakkeh or Contra-Pselcis. The inscriptions of Seti I. mention the workings and endowment of the temples with part of the produce. The tablet at Kuban records the construction of a tank or reservoir to supply with water the miners and others who crossed the desert with asses to reach the mines and bring back the gold, and is dated in the 3rd year of Rameses. Seti I., it appears, had bored a well 120 cubits, or about 190 feet, deep, for the purpose, but did not reach the water. Rameses bored 12 feet deeper, and was rewarded by the water rising. A papyrus at Turin has a map and plan of these gold mines, the royal tablet, well, houses of the miners, and roads which led to the shafts.[1]—S. B.]

In the early stages of society, when gold first began to be used, idols, ornaments, or other objects were made of the metal in its pure state, till being found too soft, and too easily worn away, an alloy was added to harden it, at the same time that it increased the bulk of the valuable material. As men advanced in experience, they found that the great ductility of gold enabled them to cover substances of all kinds with thin plates of the metal, giving all the effect of the richness and brilliancy they admired in solid gold ornaments; and the gilding of bronze, stone, silver, and wood was speedily adopted.

The leaves so used were at first thick, but skill, resulting from experience, soon showed to what a degree of fineness they could be reduced; and we find that in Egypt substances of various kinds were overlaid with fine gold leaf, at the earliest periods of which the monuments remain, even in the time of the first Usertesen. Some things still continued to be covered with thick leaf, but this was from choice, and not in consequence

[1] 'Records of the Past,' viii. p. 67. Chabas, 'Les Inscriptions des Mines d'Or,' 4to, Paris, 1862; and 'Une Inscription historique de Seti I.,' 4to, Châlon, 1856.

of any want of skill in the workmen; and in the early age of Thothmes III. they were already acquainted with all the various methods of applying gold, whether in leaf, or by inlaying, or by beating it into other metals, previously tooled with devices to receive it.

That their knowledge of gilding[1] was coeval with the sojourn of the Israelites in the country is evident from the direct mention of it in the Bible, the ark of shittim wood made by Moses being overlaid with pure gold; and the casting of the metal is noticed on the same occasion:[2] nor can we doubt that the art was derived by the Jews from Egypt, or that the Egyptians had long before been acquainted with all those secrets of metallurgy in which the specimens that remain prove them to have so eminently excelled.

The method devised by the Egyptians for beating out the leaf is unknown to us; but from the extreme fineness of some of that covering wooden and other ornaments found at Thebes, we may conclude it was done nearly in the same way as formerly in Europe, between parchment; and perhaps some membrane taken from the intestines of animals was also employed by them.

In Europe the skin of an unborn calf was at first substituted for the parchment previously used; but in the beginning of the seventeenth century, the German gold-beaters having obtained a fine pellicle from the entrails of cattle,[3] found that they could beat gold much thinner than before, and this still continues to be used, and is known to us under the name of gold-beaters' skin. 'About the year 1621,' says Beckmann,[4] 'Merunne excited general astonishment when he showed that the Parisian gold-beaters could beat an ounce of gold into sixteen hundred leaves, which together covered a surface of one hundred and five square feet. But in 1711, when the pellicles discovered by the Germans came to be used in Paris, Réaumur found that an ounce of gold in the form of a cube, five and a quarter lines at most in length, breadth, and thickness, and which covered only a surface of about twenty-seven square lines, could be so extended by the gold-beaters as to cover a surface of more than 1466½ square feet.

[1] Pliny mentions the lycophoron, a composition used for attaching gold to wood. (Plin. xxxv. 6.) 'Sinopidis Ponticæ selibra, silis lucidi libris x., et melini Græciensis duabus mixtis tritisque una, per dies xii., leucophoron fit, hoc est, glutinum auri, cum inducitur ligno.' (Theophrastus, on Stones, s. 46.)

[2] Exod. xxv. 11, 12.

[3] This 'pelle del budello' is mentioned by Lancellotti, who wrote in the year 1636.

[4] *Vide* Beckmann's valuable work, the 'History of Inventions,' vol. iv., on Gilding.

This extension, therefore, is nearly one-half more than was possible about a century before.'

Many gilt bronze vases, implements of various kinds, trinkets, statues, toys, and other objects, in metal and wood, have been discovered in the tombs of Thebes: the faces of mummies are frequently found overlaid with thick gold leaf; the painted cloth, the wooden coffin, were also profusely ornamented in this manner; and the whole body itself of the deceased was sometimes gilded previous to its being enveloped in the bandages. Not only were small objects appertaining to the service of the gods, and connected with religion, or articles of luxury and show, in the temples, tombs, or private houses, so decorated; the sculptures on the lofty walls of an adytum, the ornaments of a colossus, the doorways of the temples, and parts of numerous large monuments, were likewise covered with gilding; of which the wooden heifer, which served as a sepulchre to the body of king Mycerinus's daughter,[1] the sculptures at the temple of Kalabshi in Nubia, the statue of Minerva sent to Cyrene by Amasis,[2] and the Sphinx at the pyramids may be cited as instances.

Gold is supposed by many to have been used[3] some time before silver,[4] but the earliest authority, which is that of the Bible, mentions both these metals at the most remote age. The Egyptian sculptures represent silver as well as gold in the time of the third Thothmes, and silver rings have been found of the same epoch.[5] Abraham was said to have been 'very rich, in cattle, in silver, and in gold;'[6] and the use of silver as money[7] is distinctly pointed out in the purchase of the field of Ephron, with its cave,[8] which Abraham bought for 'four hundred shekels of silver, current money with the merchant.'

On this occasion, as usual, the price paid was settled by weight,[9]—a custom retained among the Egyptians, Hebrews, and other Eastern people till a late period; and, indeed, until a

[1] Herodot. ii. 129, 132.

[2] Ibid. ii. 182.

[3] Pliny attributes the art of working gold to Cadmus (vii. 56).

[4] [Silver was evidently of later use in Egypt than gold, silver being called 'white gold,' . White is *het*, and gold *noub*, *Noub-het*, or simply *het*. *Hat* is white, as milk was called white; לָבָן, *lebn*, in Hebrew, is 'white,' and *lebn* thus came to imply 'milk.'—G. W.]

[5] In the Museum of Alnwick Castle is a silver ring of Amenophis III. Silver rings and ornaments of every epoch are less common than gold.

[6] Gen. xiii. 2. But no mention is made of it as money till after Abraham's return from Egypt, as Goguet has justly observed (tom. i. liv. 2, ch. iv).

[7] The word silver, כֶּסֶף, is commonly used in Hebrew to signify money, as *argent* in French [and *arian*, 'silver,' in Welsh signifies 'money.'—G. W.].

[8] Gen. xxiii. 16, 17.

[9] Job xxviii. 15: 'It (wisdom) cannot be got for gold, neither shall silver be *weighed* for the price thereof.'

government stamp, or some fixed value, was given to money: this could be the only method of ascertaining the price paid, and of giving satisfaction to both parties. Thus Joseph's brethren, when they discovered the money returned into their sacks, brought it back to Egypt, observing that it was 'in full weight;' and the paintings of Thebes frequently represent persons in the act of weighing[1] gold, on the purchase of articles in the market. This continued to be the custom when rings[2] of gold and silver were used in Egypt for money, and even to the time of the Ptolemies, who established a coinage of gold, silver, and copper in the country.[3]

These princes were not the first who introduced coined money into Egypt: it had been current there during the Persian occupation of the country; and Aryandes, who was governor of Egypt, under Cambyses and Darius, struck silver coins, in imitation of the gold Darics of his sovereign, for which act of presumption he was condemned to death.[4]

It is uncertain, as Pliny observes, when and where the art of stamping money originated. Herodotus attributes it to the Lydians, 'the first people who coined gold and silver for their use;'[5] Servius Tullius made[6] copper money about the year 560 B.C., and impressed upon it the figure of a sheep, *pecus*, whence it obtained the name *pecunia;* silver was coined at Athens[7] 512 years before our era, and at Rome five years before the first Punic war,[8] or 269 B.C.;[9] and some suppose Phidon, king of Argos, to have invented weights and measures, and silver coinage,[10] in the year 895 B.C.[11]

The fact of the sheep being impressed upon it seems to agree with the custom of many people of taking a lamb as the standard of value. In Ethiopia and Darfoor they reckon a piece of cloth as equal to a full-grown sheep, and to sixty pounds, which calls to mind the *kesitæ* of the Hebrews;[12] and I have myself heard an

[1] Woodcut No. 97, vol. i. p. 285.

[2] The Chinese and Japanese have a sort of ring money, or at least round coins with a hole in the centre, which are strung together. (Plin. xxxiii. 1.) [Called *le* and *cash*, in India.—G. W.]

[3] [2 Kings v. 23; Tobit ix.; and 'Proceedings of Numismatic Society,' pp. 177, 233, and 377.—G. W.]

[4] Herodot. iv. 166.

[5] Ibid. i. 93. Jul. Poll. Onom., vi. 83. Lucan, Phars. vi. 402.

[6] Plin. liii. 3.

[7] Aristot. Œconom. lib. ii.

[8] Plin. *loc. cit.*

[9] Livy, however, mentions the *denarius* (a silver coin) much earlier, B.C. 337 (viii. 11). Gold was not struck at Rome till B.C. 207.

[10] 'In Ægina.' Strabo, lib. viii. p. 259; on the authority of Ephorus.

[11] Pausanias says gold and silver money was unknown in the age of Polydorus, king of Sparta, who died B.C. 724 (lib. iii. c. 12). That it was not in use at the time of the Trojan war, is shown by Homer. Il. H, 473, their mode of buying wine.

[12] 'Proceedings of Numismatic Society, 1837–38, p. 231.

Ethiopian talk of his sheep as his *floos*, or 'money.' Iron money is still used in Kordofan; it is of the form of a broad arrow, or a bird on the wing: these coins are of the value of a para each, forty being equal to one piastre, 100 piastres to £1 English; they are called *kashasha*, and, though different in weight, are all of one value.

Though stamped money was not used by the ancient Egyptians, we have evidence of weights and measures having been invented by them long before the Greeks existed as a nation; and it is probable that they were known even in Greece previous to the time of Phidon.

The balance used for weighing gold differed slightly from those of ordinary construction, and was probably more delicately formed. It was made, as usual, with an upright pole, rising from a broad base or stand, and a cross beam turning on a pin at its summit; but instead of strings suspending the scales, was an arm on either side, terminating in a hook, to which the gold was attached in small bags.[1]

Large scales were generally a flat wooden board, with four ropes attached to a ring at the extremity of the beam; and those of smaller size were of bronze, one of which I found in Upper Egypt, one and a half inch in diameter, pierced near the edge in three places for the strings.

The principle of the common balance was simple and ingenious: the beam passed through a ring suspended from a horizontal rod immediately above and parallel to it, and when equally balanced, the ring, which was large enough to allow the beam to play freely, showed when the scales were equally poised, and had the additional effect of preventing the beam tilting when the goods were taken out of one, and the weights suffered to remain in the other.[2] To the lower part of the ring a small plummet was fixed, and this being touched by the hand, and found to hang freely, indicated, without the necessity of looking at the beam, that the weight was just. The figure of a baboon, sometimes placed upon the top, was not connected in any way with the balance, but was the emblem of the god Thoth, the regulator of measures, of time and of writing, in his character of the moon; but I do not find any notion of the goddess of Justice being

[1] Woodcut No. 413, *d*.

[2] Woodcut No. 97, vol. i. p. 285. [The balance was called *μαχα*, and was generally of large size, but hand scales are represented on the monuments; the Egyptians did not use the steel-yard till the Roman period, many leaded bronze weights of which are found from time to time in Egypt.—S. B.]

connected with the balance, except in the judgment scenes of the dead.

The pair of scales was the ordinary and apparently only kind of balance used by the Egyptians; no instance of the steelyard being met with in the paintings of Thebes, or of Beni-Hassan; and I conclude that the introduction of the latter is confined to a Roman era [as those found are evidently of that time, with three different degrees of weights].

The Egyptians had another kind of balance, in which the equalisation of the opposite weights was ascertained by the plummet; and this last, whose invention has been ascribed by Pliny to Dædalus, is shown to have been known and applied in Egypt at least as early as the time of Usertesen, the contemporary of Joseph.

For ordinary purposes copper was most commonly used: arms, vases, statues, instruments, and implements of every kind, articles of furniture, and numerous other objects, were made of this metal, hardened by an alloy of tin, and even chisels for cutting stone, as well as carpenters' tools and knives, were of bronze. It is generally allowed that copper or bronze was known long before iron;[1] and though Tubal Cain is said to have been 'the instructor of every artificer in brass and *iron*,'[2] no direct mention is made of iron arms[3] or tools[4] till after the Exodus; and some are even inclined to doubt the *barzel* of the Hebrews being really that metal.

According to the Arundelian Marbles, iron was known one hundred and eighty-eight years before the Trojan war, about 1370 years B.C.; but Hesiod, Plutarch,[5] and others, limit its discovery to a much later period after the capture of Troy. Homer, however, distinctly mentions its use;[6] and that there is little reason to doubt the *sideros* of the poet being iron, is shown by the simile,[7] derived from the quenching of iron in water, which he applies to the hissing noise produced on piercing the eye of Polyphemus with the pointed stake, thus rendered by Pope:—

> 'And as when armourers temper in the ford
> The keen-edged poleaxe, or the shining sword,
> The red-hot metal hisses in the lake,
> Thus in his eyeball hiss'd the plunging stake.'

Among the earliest authorities for the use of iron may be cited

[1] Thus Lucretius, 'Sed prius æris erat quam ferri cognitus usus' (lib. v. 1292).
[2] Gen. iv. 22.
[3] Numb. xxxv. 16.
[4] Deut. xxvii. 5.
[5] Paus. Græc. lib. iii. c. 3, Lacon.
[6] Hom. Il. xxiii. 261, &c.
[7] Hom. Od. ix. 391.

the bedstead of Og, the king of Bashan,[1] who is said to have lived about the year 1450 before our era; and Thrasyllus[2] agrees with the Arundelian Marbles in supposing iron to have been known before the Trojan war, or indeed one hundred and fourteen years previous to the foundation of Troy,[3] 1537 before our era. On the other hand, it has been argued that offerings of iron in the temples of Greece distinctly showed the value attached to that metal, as well as its limited use for ordinary purposes, and rings of iron were worn by the ancients, some of which have been found in the tombs of Egypt. But these last are of very late date, long after iron was commonly used, and I possess one of them, engraved with the figure of Harpocrates, which is undoubtedly of a Ptolemaic or Roman era, and which only claims some degree of interest from its bearing a device noticed by Pliny as becoming fashionable at Rome in his time.[4]

That iron, as early as the days of Lycurgus, was held in little estimation, is shown by that legislator forbidding the introduction of gold and silver in his republic, and restricting the Spartans to the use of iron; and some notion may be formed of its value at that time by the assertion of Plutarch,[5] that it required a cart drawn by two oxen to carry the small sum of ten minæ.

The Jews appear to have been acquainted with two kinds of iron, previous to the Babylonish captivity,—the *barzel*, which was in common use, and the northern iron, as well as steel:[6] even as early as the days of Job[7] iron was known; and Moses mentions an iron furnace.[8]

One of the arguments against the early use of iron[9] is the difficulty of smelting the ore, and of reducing it to a malleable state; and the various processes required to discover all its most useful properties, render it less likely to be employed than a more ductile metal. Gold, silver, and copper were easily fused, and a single process sufficed to make them available for every purpose; the principal art required for fabricating implements

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[1] Deut. iii. 11.

[2] [Clemens says Celmis and Damanus first discovered iron in Cyprus.—G. W.] Clem. Alex. Strom. i.

[3] Founded B.C. 1423.

[4] Plin. xxxiii. 3: 'Jam vero Harpocratem, statuasque Ægyptiorum numinum, in digitis viri quoque portare incipiunt.'

[5] Plut. in Lycurgo.

[6] Jerem. xv. 12.

[7] Job xxviii. 2: 'Iron is taken out of the earth, and brass is molten out of the stone.' ['Brass' should, of course, be 'copper.' The age of Job is not considered so early as was formerly supposed.—G. W.]

[8] Deut. iv. 20.

[9] Pliny says the fabulous Cyclopes were the inventors of the ironsmith's forge, and the Idæi Dactyli of Crete, according to Hesiod, the first to introduce the use of iron. (Plin. vii. 56.)

of copper depending on the proper proportions and qualities of alloy introduced.

'Those three metals,' as Robertson has observed,[1] 'are found in their perfect state in the clefts of rocks, in the sides of mountains, or the channels of rivers. They were accordingly first known, and first applied to use. But iron, the most serviceable of all and to which man is most indebted,[2] is never discovered in its perfect form; its gross and stubborn ore must feel twice the force of fire, and go through two laborious processes, before it becomes fit for use. Man was long acquainted with the other metals before he acquired the art of fabricating iron, or attained such ingenuity as to perfect an invention, to which he is indebted for those instruments wherewith he subdues the earth and commands all its inhabitants.'

In the infancy of the arts and sciences, the difficulty of working iron might long withhold the secret of its superiority over copper and bronze; but it cannot reasonably be supposed that a nation so advanced, and so eminently skilled in the art of working metals as the Egyptians, should have remained ignorant of its use, even if we had no evidence of its having been known to the Greeks and other people; and the constant employment of bronze arms and implements is not a sufficient argument against their knowledge of iron, since we find the Greeks and Romans made the same things of bronze long after the period when iron was universally known.

Another argument to show that bronze was used in Greece before iron, is derived from the word 'smith' in Greek having the signification of 'coppersmith,' whether applied to a worker of copper or iron.[3] In Latin, on the contrary, *ferrum*,[4] 'an iron,' is the word frequently applied to a sword; and some have hence argued the use of iron for those weapons, at the earliest period, among the Romans. Yet we find that their swords were constantly made of bronze, as well as their defensive armour. The Etruscans almost invariably used iron for swords, daggers, spear-heads, and other offensive weapons, and confined bronze to defensive armour; a much more reasonable custom, inasmuch as the iron is more capable of perforating the softer metal: and if the early Romans did make their swords of iron,

[1] Robertson, 'America,' book iv. p. 125.
[2] Herodot. i. 68.
[3] χαλκεύς, Hom. Od. ix. 391. Herodot. i. 68.
[4] Those who derive *barzel* from *bers*, the Chaldee and Syriac word signifying 'to perforate,' might perhaps suppose *ferrum*, 'iron,' taken from *ferire*, 'to strike.'

it is probable they adopted the custom from their Italian neighbours.[1]

After examining numerous authorities, some of which assert that nations of antiquity were confined to the use of copper and bronze, while others affirm that iron was known at a most remote epoch, we may still remain in uncertainty respecting the question. But to conclude, from the want of iron instruments or arms bearing the names of early monarchs of a Pharaonic age, that bronze was alone used, is neither just nor satisfactory, since the decomposition of that metal, especially when buried for ages in the nitrous soil of Egypt, is so speedy as to preclude the possibility of its preservation.[2] Until we know in what manner, and for what sort of stone, the Egyptians employed bronze tools, the discovery of them affords neither additional light, nor even argument; since, as I before observed, the Greeks and Romans continued to make bronze instruments of various kinds long after iron was known to them:[3] and the general use of bronze may have arisen from the greater facility of working the metal, remelting and casting it afresh, as well as from its being easier to find than iron; for though this last, in its various combinations, is more universally diffused over the face of the globe,[4] it does not always occur in a state of which the miner can easily avail himself, and I only know of one mine in Egypt worked by the ancients. It lies in the eastern desert, between the Nile and the Red Sea, at a place called Hammámi, and was discovered by my friend Mr. Burton, who visited it in 1822, and found the metal to be in the form of specular and red iron ore.

In Ethiopia iron was much more abundant than in Egypt, and Herodotus may be correct in stating that copper was there a rare metal;[5] though we are not disposed to believe his assertion of prisoners in that country being bound with golden fetters.

[The question of the use of iron amongst the Egyptians has

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[1] Iron swords have been found in Etruscan tombs, and there is no doubt of the use of iron by the Italian nations at an early period. Among the Assyrians, dated specimens of iron are as old as eight centuries B.C. at least.—S. B.

[2] [Herodotus speaks of iron tools used in building the pyramids (ii. 125). The piece of iron found by Colonel Howard Vyse, embedded between two stones of the Great Pyramid, may have been placed there when the pyramid was built, or may have been forced between them when the Arabs were removing the blocks. But there are other and better proofs of the use of iron in Egypt. Of course, in no land could iron be preserved so long as other metals.—G. W.]

[3] Beckmann's 'History of Inventions,' on the early use of steel, vol. iv.

[4] As Pliny observes, 'Metallorum omnium vena ferri largissima est' (xxxiv. c. 14).

[5] Herodot. iii. 23.

been rendered long doubtful by the few specimens of that metal found in the monuments and sepulchres. A thin fragment of wrought plate-iron was found in one of the air-passages of the Great Pyramid,[1] and the iron blade of a falchion under a sphinx at Karnak.[2] Lately a broken statue of bronze from the neighbourhood of the Pyramids and of the age of the Ramessids has been found with iron wires passed through the sand core to sustain it in its oval places.[3] Amongst other objects of iron may be cited the iron blade of an adze with a bone or ivory handle.[4] There is of course no doubt about the use of iron at a later period, and under the Romans iron nails have been found in the hasps of doors and in coffins, replacing the wooden plugs employed for that purpose at the Pharaonic time.[5] Two words have been found descriptive of iron,—*baa en pe*, 'heavenly metal,' supposed to be meteoric iron, and *ba nu ta*, or 'terrestrial metal,' that found in the earth. Another word has been supposed to mean steel, but it seems doubtful. Iron vessels were brought from Syria and Phœnicia as tribute to Thothmes.—S. B.]

In the sepulchres of Thebes I have had occasion to remark butchers represented sharpening their knives on a round bar of metal attached to their apron; and the blue colour of the blades, and the distinction maintained between the bronze and steel weapons in the tomb of Rameses III., one being painted red and the other blue, leave little doubt that the Egyptians of an early Pharaonic age were acquainted with the use of iron.

Many implements of husbandry—the plough, the hoe, and the fork—were frequently of wood, as simple in their form as in the materials of which they were made; the ploughshare was probably sometimes sheathed with, or the blade of a hoe formed of, metal; but it is uncertain whether iron was employed for this purpose, or if, like the tools of earlier days mentioned by Hesiod,[6] they were confined to bronze.

Several wooden hoes have been found in Egypt, and are now preserved in the museums of Europe: the blades and handles are simply inserted the one into the other, and bound together in the middle with a twisted rope; and their general appearance,

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[1] 'Trans. International Congress of Orientalists,' 4to, London, 1875, pp. 396, 397.

[2] 'Guide to Egyptian Rooms, British Museum,' 1874, p. 38, No. 5410.

[3] Belonging to Mr. Baldry.

[4] Devéria, 'Mélanges d'Archéologie égyptienne,' i. 2; Chabas, 'Études sur l'Antiquité historique.'

[5] Rhind, 'Thebes, its Tombs,' p. 218.

[6] Hesiod, Oper. et Dies, v. 151: 'Men tilled the ground with bronze, iron not being as yet known.'

according exactly with those represented in the agricultural scenes of the tombs, shows them to have been the kind most commonly used,[1] even to the latest times.

It is true that the Berlin Museum has the head of a small hoe of iron, but of what date is uncertain; and no inference can be drawn from it, especially as its form differs essentially from those of the paintings.

No. 417. Wooden hoes. *Berlin Museum.*

I have already stated that the speedy decomposition of iron would be sufficient to prevent our finding implements of that metal of an early period, and that the greater opportunities of obtaining copper ore, added to the facility of working it, were a reason for preferring the latter whenever it answered the purpose instead of iron. I shall presently endeavour to show how bronze tools might be made available for sculpturing and engraving stone; though there is great difficulty in accounting for their use in mines and quarries, where the stone was frequently hewn with them: as Agatharcides[2] informs us in his account of the gold mines, and as I have reason to believe was done in cutting the limestone rock of the tombs at Thebes; having found a bronze chisel amidst the chippings of the stone, where it had been accidentally left by the workmen.

The hieroglyphics on obelisks and other granitic monuments

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[1] Woodcut No. 112, vol. i. p. 344.

[2] He says, λατομίδες χάλκαι, '*wedges of bronze* are found,' and infers that they were not then acquainted with iron.

are sculptured with a minuteness and finish which, even if they used steel as highly tempered as our own, cannot fail to surprise the beholder, and to elicit from him the confession that our modern sculptors are unable to vie with them in this branch of art.

Some are cut to the depth of more than two inches, the edges and all the most minute parts of the intaglio presenting the same sharpness and accuracy; and I have seen the figure of a king in high relief, reposing on the lid of a granite coffin, which was raised to the height of nine inches above the level of the surface. What can be said, if we deny to men who executed such works as these the aid of steel, and confine them to bronze implements? Then, indeed, we exalt their skill in metallurgy far beyond our own, and indirectly confess that they had devised a method of sculpturing stone of which we are ignorant. In vain should we attempt to render copper, by the addition of certain alloys, sufficiently hard to sculpture granite, basalt, and stones of similar quality. No one who has tried to perforate or cut a block of Egyptian granite will scruple to acknowledge that our best steel tools are turned in a very short time,[1] and require to be retempered: and the labour experienced by the French engineers who removed the obelisk of Luxor from Thebes, in cutting a space less than two feet deep along the face of its partially decomposed pedestal, suffices to show that, even with our excellent modern implements, we find considerable difficulty in doing what to the Egyptians would have been one of the least arduous tasks. At Thebes chisels are represented in the paintings as used in cutting granite statues, but whether they are of bronze it is difficult to say.

Some have imagined that the granite being somewhat softer, at the time it is taken from the quarry, was more easily sculptured

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[1] I am indebted to Sir R. Westmacott for the following observations on this subject: 'Granite, as most hard materials of that nature, being generally worked with a pick of various strength, until reduced to a surface, the duration of the tool depends on its form; the more obtuse the longer it will work, remaining longer cold. In *jumping* (as it is termed) holes for the admission of bolts into fractured parts of granite, the tools are usually of strong tempered iron, about three quarters of an inch in diameter, which resist the heat sometimes half an hour, seldom longer. One man holds and turns or moves the tool, whilst the other strikes it with a heavy hammer, the hole being supplied with water. Tools of less diameter are formed of steel, but these will not resist more than three hundred strokes, when the points fly, and require to be fresh battered. Sculptors generally use tools formed of blistered steel, or of cast steel, the finer sort highly tempered, by immersing them, when heated to a proper degree, into cold water. Carpenters' tools again, and saws, are of the best cast steel, and are tempered in oil.'

when the Egyptians put up the obelisks than at present, and thus satisfy themselves that the labour was considerably less; but this argument is entirely overthrown by the fact of other sculptures having been frequently added, one hundred and one hundred and fifty years after the erection of the monument, as in the lateral lines of hieroglyphics on obelisks, which are sometimes found more deeply cut and more beautifully executed than those previously sculptured. Others have suggested that the stone being stunned, as it is termed, in those places where it was to be sculptured, yielded more readily to the blow of the chisel; but neither is this sufficient to produce the effect proposed, nor an advantage exclusively enjoyed by the ancient Egyptians.[1]

Thus, then, we find that the facility they possessed of sculpturing granite is neither attributable to any process for bruising the crystals, nor to its softer state on coming from the quarry: we must therefore account for it in the skill they had acquired, and endeavour to discover the means they employed with such wonderful success.

The hieroglyphics on the obelisks are rather engraved than sculptured; and, judging from the minute manner in which they are executed, we may suppose they adopted the same process as engravers, and even in some instances employed the wheel and drill. That they were acquainted with the use of emery powder[2] is not at all improbable, since, being found in the islands of the Archipelago, it was within their reach; and if this be admitted, we can account for the admirable finish and sharpness of the hieroglyphics on granitic and basaltic monuments, and explain the reason of their preferring tools of bronze to those of harder and more compact steel: for it is evident the powder enters more readily into the former, and its action upon the stone is increased in proportion to the quantity retained by the point of the chisel; whence we now prefer tools of soft iron to hard steel for the same purpose.

As far as the sculpture or engraving of hieroglyphics, this explanation might suffice for their preference of bronze imple-

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[1] It has been supposed that owing to the method of working by stunning, so as to shake the block every time when struck, the necessity arose of leaving the parts between the arms and legs reserved, or not cut away.—S. B.

[2] It is probable that this powder was used in sawing granite, a process not uncommonly resorted to by the Egyptians; and the presence of oxide of copper in the part where the rock was cut, which surprised De Rozière and others, may thus be more readily accounted for.

ments; but when we find tools used in quarries made of the same metal, we are unable to account for it, and readily express our surprise how they could render a bronze chisel capable of hewing stone. We know of no means of tempering copper, under any form or united with any alloys, for such a purpose. The addition of tin or other metals to harden it, if exceeding certain proportions, renders it too brittle for use; and that such is not the case is evident from the chisel I found at Thebes, which, though it contains an alloy of tin, viz. 5·9 parts of tin in 100, is far from being brittle, and is easily turned by striking it against the very stone it was once used to cut. Had it depended on the proportions of its alloys, it ought still to possess the same power as formerly, and its point should act in the same manner upon the stone; for, what is very remarkable, the summit was turned over by the blows it had received from the mallet, while the point was intact, as if it had recently left the hands of the smith who made it.

What, then, gave it the power of cutting the stone, and of resisting in this manner? for unless some medium was employed, as a sheath of steel or other protection to its point, we must confess that the Egyptians appear to have possessed certain secrets for hardening or tempering bronze, with which we are totally unacquainted. The size of this chisel is from 9 to 9⅛ inches in length; its diameter at the summit is 1 inch, and the point is $\frac{7}{10}$ of an inch in its greatest width: its weight is 1lb. 12oz., and in general form it resembles those now used by the masons of modern Europe.

The skill of the Egyptians in compounding metals is abundantly proved by the vases, mirrors, arms, and implements of bronze, discovered at Thebes and other parts of Egypt; and the numerous methods[1] they adopted for varying the composition of bronze, by a judicious admixture of alloys,[2] are shown in the many qualities of the metal. They had even the secret of giving to bronze or brass[3] blades a certain degree of elasticity; as may be seen in the dagger of the Berlin Museum already noticed,

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[1] Greek bronzes of the earliest and latest times have generally the same proportion of alloy. A little silver sometimes occurs, but this is supposed to have entered accidentally with the tin. [Dr. Ure, 'Dict. of Arts and Manufactures,' COPPER. —G. W.]

[2] In almost all the bronzes hitherto analysed, the proportion is about twelve parts of tin in a hundred.

[3] There is no direct proof of brass implements being known to the ancient Egyptians, and no analysis has yet shown the presence of zinc. I have a ring apparently of brass, but it is possible that gold is there used instead of zinc.

which probably depended on the mode of hammering the metal, and the just proportions of peculiar alloys.

Another remarkable feature in their bronze is the resistance it offers to the effect of the atmosphere; some continuing smooth and bright, though buried for ages, and since exposed to the damp of European climates, and some presenting the appearance of *previous* oxidation purposely induced.[1]

It is not known at what period they began to cast statues and other objects in bronze, or if the use of beaten copper long preceded the art of casting in that metal. No light is thrown on this point by the paintings of Beni-Hassan and Thebes, or by the tombs in the vicinity of the Pyramids, which, from their early date, would be an authority highly satisfactory and important. It is, indeed, singular that at no period do we find any representation, among the many subjects connected with the trades, arts, and occupations of the Egyptians, which relate to this process; even in tombs or on monuments made at a time when we know from positive evidence that they were acquainted with it:—another convincing proof that no argument against the existence of a custom ought to be derived from the circumstance of its not being indicated on the monuments.

Many bronze statues have been found, evidently, from their style, of a very early period; but in the absence of a king's name it is impossible to fix their exact date, though I feel persuaded that the art of casting metal was known before the commencement of the 18th Dynasty, and it is probable that many specimens exist of the age of Usertesen and Thothmes.

Pausanias,[2] in speaking of the art of casting metal, observes that the people of Pheneum in Arcadia pretended that Ulysses dedicated a statue of bronze to Neptune Hippius, in order that he might recover the horses he had lost, through the intervention of the deity; 'and indeed,' he adds, 'they showed me an inscription on the pedestal of the statue offering a reward to any person who should find and take care of the animals; but I do not give credit to the whole of their statement, and no one can persuade me that Ulysses erected a *bronze* statue to Neptune. The art of fusing metal and casting it in a mould was not yet known; a statue was made in those times like a dress, successively and in pieces, not at one time or in a single mass, as I

[1] I suppose the metal was then coated with some substance which filled the pores. This is done at the present day.

[2] Paus. Græc. lib. viii. c. 14, Arcad.

have already shown[1] in speaking of the statue of Jupiter, surnamed the Most High. In fact, the first who cast statues were Rhœcus the son of Philæus, and Theodorus[2] the son of Telecles, both natives of Samos; the latter the same who engraved[3] the beautiful emerald in the ring of Polycrates.'

The Samians were noted at an early period for their skill in this branch of art; and before the foundation of Cyrene, or B.C. 630, they made a bronze vase, ornamented with griffins, supported on three colossal figures of the same metal, for the temple of Juno.[4] The art was also known at a very remote period in Italy. Among the Etruscans bronze statues were common before the foundation of Rome; and Romulus is said to have placed a statue of himself, crowned by Victory, in a four-horse car of bronze, which had been captured at the taking of Camerium.[5]

Pliny attributes the discovery of gold and the secret of smelting it to Cadmus,[6] who is supposed to have gone to Greece 1493 years before our era; but this, like most of the inventions mentioned by him, was long before known to the Egyptians; and we may apply the same remark to the supposed discovery of Rhœcus and Theodorus.

It is uncertain whether the Egyptians possessed the art of damascening or inlaying iron with gold, since, owing to the speedy decomposition of that metal, nothing made of iron has been preserved of a remote era; but we may conclude, from their inlaying bronze in this manner, that it was not unknown to them.

Some have supposed that Glaucus of Chios was the inventor of this art, and that the stand of his silver vase—presented to the temple of Delphi by Alyattes king of Lydia, which, according to Herodotus,[7] was the most beautiful of all the offerings there—was made of iron inlaid with gold. But the description given of it by Pausanias[8] will not sanction this opinion, as he expressly states 'it consisted of several plates of iron, adjusted one over the other in the form of steps; the last—that is, those of the summit—curving a little outwards. It had the form of a tower, large at the base and decreasing upwards, and the pieces of which it was composed were not fastened either with nails or pins, but simply soldered together.'

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[1] Paus. Græc. lib. iii.

[2] Pliny (vii. 56) says, 'Theodorus invented the rule, the level, the turner's instrument, and the key.'

[3] Herodot. iii. 41. Plin. xxxvii. 1.

[4] Herodot. iv. 152.

[5] Dionys. Hal. Ant. Rom. l. ii. Plut. in Rom.

[6] Plin. vii. 56.

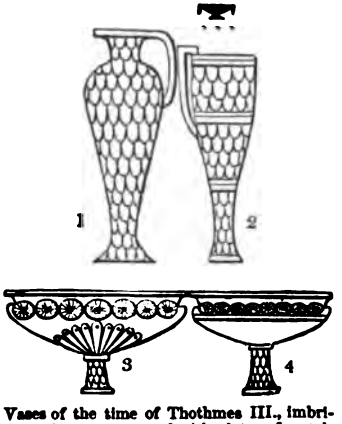
[7] Herod. i. 25.

[8] Paus. lib. x. 16. Phoc.

The Greeks, however, were not ignorant of damascening; and though the stand of Alyattes' vase was not so inlaid, it is certain they possessed the art, and ornamented goblets and other objects in that manner. The process was very simple: the iron was carved with various devices, and the narrow lines thus hollowed out were filled with gold or with silver, which in some instances were probably soldered, and in others simply beaten in with the hammer, the surface being afterwards filed and polished.

The term damascening, though generally confined to iron or steel so inlaid (owing to its having been borrowed from the specimens of this work in the modern sword-blades of Damascus), may with equal propriety be extended to any metal; and numerous instances of bronze inlaid with gold and silver occur in statues, scarabæi, and various ornamental objects discovered at Thebes and other places. Hard stones were also engraved in the same manner, and the intaglio filled with gold or silver beaten into it; a process commonly adopted at the present day by the Turks and other Eastern people in their *hookahs* or *nârgilehs*, handles of daggers, and the stone ornaments of their amber mouth-pieces; but at what time this was first done it is needless to conjecture.

The art of soldering metals had long been practised in Egypt before the time of Glaucus; and it is curious to find gold and bronze vases, made apparently in the same manner as the stand of that mentioned by Pausanias, represented at Thebes in sculptures executed during the reign of the third Thothmes, 1490 years before our era, and consequently many centuries previous to the Chian artist. They are shown to have been composed of plates of metal, imbricated, or overlapping each other, as Pausanias describes, and sometimes bound at intervals with bands of metal. Instances occur in the same sculptures of gold vases with stands formed of similar plates, which are interesting also from the elegance of their forms.



Vases of the time of Thothmes III., imbricated, or ornamented with plates of metal. Over them is the word 'gold,' showing the material of which they were made.
No. 418. *Thebes.*

In coarser work, or in those parts which were out of sight, the Egyptians soldered with lead, but we are ignorant of the time

when it was first used for that purpose, though it could only have been after the discovery of tin; for, as Pliny[1] justly observes, 'lead can only be united by the addition of tin, nor is this last efficient without the application of oil.'[2] The oldest specimen of metal soldered with lead with which I am acquainted, is the sistrum of Mr. Burton;[3] its date, however, is uncertain; and though, from the style of the figures engraved upon it, we may venture to ascribe it to a Pharaonic age, the exact period when it was made cannot be fixed.

In early ages, before men had acquired the art of smelting ore, and of making arms and implements of metal, stones of various kinds were used, and the chasseur was contented with the pointed flint with which nature had provided him. The only effort of his ingenuity was to fix it in some kind of handle, or at the extremity of a reed, in order to make the knife or the arrow; and we still witness the skill which some savage people of the present day display in constructing those rude weapons.

The Egyptians, at a remote period, before civilisation dawned upon them, probably adopted the same, since we find that stone-tipped arrows continued to be occasionally used for hunting, even after they had improved every species of weapon, and after the arts had arrived at the state of perfection in which they appear subsequently to the accession of the 18th Dynasty. Long habit had reconciled them to the original reed shaft, with its head of flint, and even to arrows made with a point of hard wood inserted into them, which were also the remnant of a primeval custom.[4]

Those, however, who preferred them of a stronger kind, adopted arrows of wood tipped with bronze heads; and these were considered more serviceable, and were almost invariably used in war. But when this improvement took place in the construction of their arms it is impossible to conjecture, being coeval with the early stages of a civilisation which is concealed by the veil of ages, and dates long before the period of which any monuments remain.

It is, indeed, a remarkable fact that the first glimpse we

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[1] Plin. xxxiv. 16.

[2] Or resin, which we now use.

[3] In the British Museum, No. 6355.

[4] The period of the use of bronze arrow-heads appears uncertain, as none of those discovered bear any date or inscription showing their age, and some are evidently of the Greek, or even Roman, period, especially the three bladed ones. Those from the early times have either pointed wooden or stone heads.—S. B.

obtain of the history and manners of the Egyptians shows us a nation already advanced in all the arts of civilised life, and the same customs and inventions that prevailed in the Augustan era of that people, after the accession of the 18th Dynasty, are found in the remote age of Usertesen, the contemporary of Joseph; nor can there be any doubt that they were in the same civilised state when Abraham visited the country.

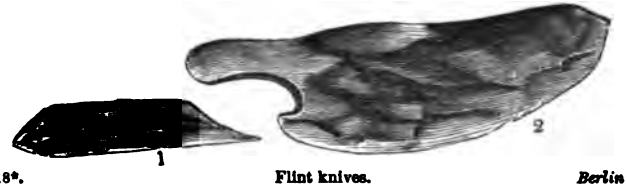
I have observed that the fact of private citizens going unarmed, and of the soldier laying aside his sword and other weapons when not on service, may be considered a strong proof of refinement, and of their advancement in the habits of social life. The same custom was already adopted at the time to which I allude; and many circumstances unite in proclaiming the civilisation of Egypt at least as early as the 18th century before our era. How far does this throw us back into the infancy of the world! at least of the world peopled by the descendants of Noah—and when we recollect that the pyramids of Memphis were erected within three hundred years after the era assigned to the Deluge, and that the tombs of Beni-Hassan were hewn and painted with subjects describing the arts and manners of a highly-civilised people about six hundred years after that event, it may occur that the distance between the Deluge and the construction of those pyramids and tombs is not greater than from the present day to the reigns of our own Elizabeth and Henry III.

The same prejudice in favour of an ancient and primitive custom retained the use of stone knives for certain purposes connected with religion among the Egyptians; and Herodotus tells us it was usual to make an incision in the body of the deceased, when brought to be embalmed, with an Ethiopic stone.[1] This name, though very indefinite, seems here, as in all instances where the stone is said to be applied to a similar purpose, to signify flint; and this conjecture is not only confirmed by probability, and by the frequent use of it by many people as a cutting instrument, but by the fact of our finding several knives of that stone in the tombs of Thebes. In other cases the Ethiopic stone mentioned by Herodotus is evidently granite, so called from being common in Ethiopia; and it is possible that the flint received that name from its black colour.

The knives found in the excavations and tombs, many of which are preserved in our European museums, are generally of

[1] Herodot. ii. 86.

two kinds; one broad and flat like the blade of a knife, the other narrow and pointed at the summit, several of which are preserved in the Berlin Museum. These last[1] are supposed to have been used for making the incision in the side of the body, for the purpose of removing the intestines, preparatory to the embalming process already mentioned; and, considering how strongly men's minds are prepossessed in favour of early habits connected with religion, and how scrupulous the Egyptians were, above all people, in permitting the introduction of new customs in matters relating to the gods, we are not surprised that they should have retained the use of these primitive instruments in a ceremony of so sacred a nature as the embalming of the dead.



No. 418*. Flint knives. *Berlin Museum.*

[The use of stone weapons amongst the ancient Egyptians has lately attracted[2] considerable attention, and, without doubt, dated from the earliest period, a beautiful little stone saw having been found by Professor Hayter Lewis at the Pyramid of Zowet el Arrian, built under one of the first six dynasties. The various stone knives in the museums of Europe are of pyromachous silex, of a light brown, not dark colour, and they were often deposited in baskets near the mummies, and fragments or slices of flint have been discovered in the tombs. Arrow-heads resembling those of the stone period have also been discovered in a tomb of the 22nd Dynasty, or the 9th century B.C.; and other leaf-shaped pieces, apparently for the same use. Great quantities of flint instruments have also been found in the neighbourhood of Egyptian temples and stations in the peninsula of Sinai in Arabia, amongst them stone hammers; knives of dark steatite are also known, and the blade of a dagger of pyromachous silex. —S. B.]

[1] Woodcut No. 418*, *fig.* 1.
[2] Chabas, 'Études sur l'Antiquité historique,' 8vo, Paris, 1872, p. 328 and foll.

Vignette I.—Tomb at Saqqára, arched with stone, of the time of Psammatichus I., whose name occurs on the roof to the left, and other places.

CHAPTER X.

Style of Art among the Egyptians—Names of early Kings: Cheops, or Suphis, and others—Some of the Subjects of the Sculptures in the Temples—Colours—Relief and Intaglio—Painting—Brick Pyramids—The Arch—Quarries—Large Blocks of Stone moved—Bellows, Siphons, Inventions—Dresses—Wigs—Women's Dresses and Jewellery—Eyes painted—Baths—Medical Men—Exvotos.

THE same veneration for ancient usage and the stern regulations of the priesthood, which forbade any innovation in the form of the human figure, particularly in subjects connected with religion, fettered the genius of the Egyptian artists, and prevented its development. The same formal outline, the same attitudes and postures of the body, the same conventional mode of representing the different parts, were adhered to, at the latest as at the earliest

periods; no improvements, resulting from experience and observation, were admitted in the mode of drawing the figure, no attempt was made to copy nature, or to give proper action to the limbs. Certain rules, certain models, had been established by law, and the faulty conceptions of early times were copied and perpetuated by every successive artist: for, as Plato and Synesius inform us, sculptors were not suffered to attempt anything contrary to the regulations laid down regarding the figures of the gods; they were forbidden to introduce any change, or to invent new subjects and habits; and thus the art, and the rules which bound it, always remained the same.

Egyptian bas-relief appears to have been, in its origin, a mere copy of painting, its predecessor. The first attempt to represent the figures of gods, sacred emblems, and other subjects, consisted in painting simple outlines of them on a flat surface, the details being afterwards put in with colour; but in process of time these forms were traced on stone with a tool, and the intermediate space between the various figures being afterwards cut away, the once level surface assumed the appearance of a bas-relief. It was, in fact, a pictorial representation on stone, which is evidently the character of all the bas-reliefs on Egyptian monuments, and which readily accounts for the imperfect arrangement of their figures.

Deficient in conception, and, above all, in a proper knowledge of grouping, they were unable to form those combinations which give true expression; every picture was made up of isolated parts, put together according to some general notions, but without harmony or preconceived effect. The human face, the whole body, and everything they introduced, were composed in the same manner, of separate members placed together one by one, according to their relative situations: the eye, the nose, and other features composed a face; but the expression of feelings and passions was entirely wanting; and the countenance of the king, whether charging an enemy's phalanx in the heat of battle, or peaceably offering incense in a sombre temple, presented the same outline and the same inanimate look. The peculiarity of the front view of an eye, introduced in a profile, is thus accounted for: it was the ordinary representation of that feature added to a profile, and no allowance was made for any change in the position of the head.

It was the same with drapery: the figure was first drawn, and the drapery then added, not as part of the whole, but as an

accessory; they had no general conception, no previous idea of the effect required to distinguish the warrior or the priest, beyond the impressions received from costume, or from the subject of which they formed a part; and the same figure was dressed according to the character it was intended to perform. Every portion of a picture was conceived by itself, and inserted as it was wanted to complete the scene; and when the walls of the building, where a subject was to be drawn, had been accurately ruled with squares, the figures were introduced, and fitted to this mechanical arrangement. The members were appended to the body, and these squares regulated their form and distribution in whatever posture they might be placed.

Thus then, as Diodorus observes[1] of Egyptian statues, various portions of the same figure might be made by several artists in different places, the style and attitude having been previously agreed upon, which, when brought together, would necessarily agree, and form a complete whole.

As long as this conventional system continued, no great change could take place beyond a slight variation in the proportions, which at one period became more elongated, particularly in the reign of the second Rameses; but still the general form and character of the figures continued the same, which led to the remark of Plato, 'that the pictures and statues made ten thousand years ago are in no one particular better or worse than what they now make.'[2] And that they were still bound by the same regulations, which prohibited all change in these matters, even to the latest times, is evident from the sculptures of the monuments erected when Egypt had long been a Roman province. All was still Egyptian, though of a bad style; and if they then attempted to finish the details with more precision, it was only substituting ornament for simplicity; and this love of minuteness plainly indicated a deficiency of taste, the natural consequence of the decadence of art.

In the composition of modern paintings three objects are required—one main action; one point of view; and one instant of time: and the proportions and harmony of the parts are regulated by perspective. But in Egyptian sculpture these essentials were disregarded: everything was sacrificed to the principal

[1] Diod. i. 98. This I believe never to have been done by the Egyptians, because their statues were all of one piece. He mentions a Greek statue of Apollo of Samos, made in two pieces, by Telecles and Theodorus, at Samos and Ephesus.

[2] Plato, Second Book of Laws.

figure; its colossal dimensions pointed it out as a centre to which all the rest was a mere accessory; and, if any other was made equally conspicuous or of equal size, it was still in a subordinate station, and only intended to illustrate the scene connected with the hero of the piece.

In the paintings of the tombs greater licence was allowed in the representation of subjects relating to private life, the trades, or the manners and occupations of the people; and some indication of perspective in the position of the figures may occasionally be observed: but the attempt was imperfect, and probably, to an Egyptian eye, unpleasing; for such is the force of habit, that even where nature is copied, a conventional style is sometimes preferred to a more accurate representation.

In the battle-scenes on the temples of Thebes, some of the figures representing the monarch pursuing the flying enemy, despatching a hostile chief with his sword, and drawing his bow, as his horses carry his car over the prostrate bodies of the slain, are drawn with much spirit, and the position of the arms gives a perfect idea of the action which the artist intended to portray; still, the same imperfections of style and want of truth are observed. There is action, but no sentiment, expression of the passions, or life in the features; it is a figure ready formed, and mechanically *varied* into movement; and whatever position it is made to assume, the point of view is the same: the same profile of the human body with the anomaly of the shoulders seen in front, and attached as a separate though component part of the whole figure.

Limited to such a conventional mode of drawing, it was in vain for the Egyptian artists to aspire to that degree of excellence attained by the Greeks, unfettered by prejudice, and allowed to imitate the beauties of nature; much less could they arrive at that degree of feeling which formed taste, and called forth the poetry of the mind: their imaginative powers were checked; they were forced to remain contented with the models already before them; and no new conceptions were elicited or required.

In the representation of animals, they appear not to have been restricted to the same rigid style; but genius once cramped can scarcely be expected to make any great effort to rise, or to succeed in the attempt; and the same union of parts into a whole, the same preference for profile, are observable in these as in the human figure. Seldom did they attempt to draw the face in

front, either of men or animals; and when this was done, it fell far short of the profile, and was composed of the same juxtaposition of parts. It must, however, be allowed, that in general the character and form of animals were admirably portrayed; the parts were put together with greater truth; and the same licence was not resorted to as in the shoulders and other portions of the human body. Nor will I deny that great life and animation are given to the antelope and many wild beasts in the hunting scenes of the Theban tombs, or refuse my assent to the observation of Madame de Staël,[1] 'Les sculpteurs Égyptiens saisissaient avec bien plus de génie la figure des animaux que celle des hommes.'

The mode of representing men and animals in profile is primitive, and characteristic of the commencement of art:[2] the first attempts made by an uncivilised people are confined to it; and until the genius of artists bursts forth, this style continues to hold its ground. From its simplicity it is readily understood; the most inexperienced perceive the object intended to be represented; and no effort is required to comprehend it. Hence it is that, though few combinations can be made under such restrictions, those few are perfectly intelligible, the eye being aware of the resemblance to the simple exterior; and the modern uninstructed peasant of Egypt, who is immediately struck with and understands the paintings of the Theban tombs, if shown an European drawing, is seldom able to distinguish men from animals; and no argument will induce him to tolerate foreshortening, the omission of those parts of the body concealed from his view by the perspective of the picture, or the introduction of shadows, particularly on the human flesh.

Bas-relief may be considered the earliest style of sculpture. It originated in those pictorial representations which were the primeval records of a people anxious to commemorate their victories, the accession or the virtues of a king, and other events connected with their history. These were the first purposes to which the imitative powers of the mind were applied; but the progress was slow, and the infant art (if it may be so called) passed through several stages ere it had the power of portraying real occurrences and imitating living scenes. The rude drawing of a spear, a sword, a bow, or other weapon, supplied at first the

[1] Corinne, vol. i. p. 127.
[2] See prehistoric remains in the British Museum.

place of the action itself, of which it was a species of hieroglyphic; but in process of time the outlines of a warrior and a prostrate foe were attempted, and the valour of the prince who had led them to victory was recorded by this simple group.

As their skill increased, the mere allegorical representation was extended to that of a descriptive kind, and some resemblance of the hero's person was attempted; his car, the army he commanded, and the flying enemies, were introduced; and what was at first scarcely more than a symbol, assumed the more exalted form and character of a picture. Of a similar nature were all their historical records, and these pictorial illustrations were a substitute for written documents. Sculpture, indeed, long preceded letters; and we find that even in Greece, to describe, draw, engrave, and write were expressed by the same word, *graphein*.

The want of letters, and the inability to describe an individual, his occupations, or his glorious actions, led them in early ages to bury with the body some object which might indicate the character of the deceased. Thus, warriors were interred with their arms;[1] artisans with the implements they had used; the oar was placed over the sailor; and paterœ, and other utensils connected with his office, or the emblems of the deity in whose service he had been employed, were deposited in the sepulchre of a priest. In those times we find no inscription mentioned; a simple mound was raised over a chief, sometimes with a *stylos* or rough stone pillar placed upon it, but no writing: and when, at a later period, any allusion to the occupations of the deceased was attempted, a rude allegorical emblem, of the same nature as the early historical records before alluded to, was engraved on the levelled surface of the stone.

Poetry and songs also supplied the want of writing, to record the details of events; and tradition handed down the glorious achievements of a conqueror, and the history of past years, with the precision and enthusiasm of national pride. The poetry was recited to the sound of music, whence the same expression often implied the ode and the song; and as laws were recorded in a similar manner, the word *nomos* signified, as Aristotle observes, both a law and a song.

Sculpture dates long before architecture. A simple hut, or a rude house, answer every purpose as a place of abode, and a long time elapses before man seeks to invent what is not demanded by necessity.

[1] Virgil, Æn. vi. 233, at the tomb of Misenus.

Architecture is a creation of the mind; it has no model in nature, and it requires great imaginative powers to conceive its ideal beauties, to make a proper combination of parts, and to judge of the harmony of forms altogether new and beyond the reach of experience. But the desire in man to imitate and to record what has passed before his eyes—in short, to transfer the impression from his own mind to another—is natural in every stage of society: and however imperfectly he may succeed in representing the objects themselves, his attempts to indicate their relative position, and to embody the expression of his own ideas, are a source of the highest satisfaction.

As the wish to record events gave the first, religion gave the second impulse to sculpture. The simple pillar of wood or stone[1] which was originally chosen to represent the deity, afterwards assumed the human form, the noblest image of the power that created it; and the memorial of the primitive substitute for a statue is curiously preserved in the Greek name κίων, implying a column and an idol. Pausanias[2] thinks that 'all statues were in ancient times of wood, particularly those made in Egypt:' but this must have been at a period so remote as to be far beyond the known history of that country; though it is probable that, when the arts were in their infancy, the Egyptians were confined to statues of that kind; and they occasionally erected wooden figures in their temples, even till the times of the later Pharaohs.

Long after men had attempted to make out the parts of the figure, statues continued to be very rude: the arms were placed directly down the side to the thighs, and the legs were united together; nor did they pass beyond this imperfect state in Greece, until the age of Dædalus. The Egyptians, at the latest periods, continued to follow the imperfect models of their early artists, and grace and feeling were for ever prevented from forming a feature of their sculpture; and though they made great progress in other branches of art, though they evinced considerable taste in the forms of their vases, their furniture, and even in some architectural details, they were for ever deficient in the combination of ideal beauty with the natural position of parts in the human figure.

One great impediment to the advancement of the statuary's

[1] Lucan (iii. 412), mentioning the statues of the gods of Massilia, says,

'Simulacraque mœsta deorum
Arte carent, cæsisque extant informia truncis.'

And Tacitus (de mor. Germ.) describes those of the Germans as 'e stipitibus et impolito robore.'

[2] Pausanias, lib. ii. c. 19.

art in Egypt was the unvarying posture of the figures, which were always in a state of repose, or in a position that only required the limbs to be straight, without any attempt at action, or indeed any indication of life: they were really *statues* of the person they represented, not the person 'living in marble,' in which they differed entirely from those of Greece. No statue of a warrior was sculptured in the varied attitudes of attack and defence; no wrestlers; no *discobolus*, except one in the Tombs of the Kings; no pugilist exhibited the grace, the vigour, or the muscular action of a man; nor were the beauties, the feeling, and the elegance of female forms displayed in stone: all was made to conform to the same invariable model, which confined the human figure to a few conventional postures.

A sitting statue, whether of a man or woman, was represented with the hands placed upon the knees, or held across the breast; a kneeling figure sometimes supported a small shrine or sacred emblem; and when standing, the arms were placed directly down the sides to the thighs, one foot being advanced beyond the other, as if in the attitude of walking, but without any attempt to separate the legs. [Groups were exceedingly rare, and seldom exceed two figures, generally husband and wife, seated on the same seat or chair, holding one another's hands, or placing their arms round one another's waists or on the shoulders. Occasionally the principal figure is seated or standing, and the other younger or inferior members of the family carved in small proportions at the sides. The seated figures are in the attitude of a man resting on his haunches, his hands brought up to his chin, and the greater part of his body covered with drapery from which the hands alone emerge, or else seated on a chair or throne, the hands brought down to the thighs. An attitude more rarely seen is that of a man seated on his legs upon the ground, unrolling and reading a roll of papyrus. The kneeling figures are either kneeling on both knees, their hands at the sides, or else holding before them a shrine, altar, or some other object. The standing statues have the left foot advanced, the hands pendent at the sides, and the fists sometimes clenched, one holding a cylindrical roll or folded sash or napkin, and, in the case of deities or deified kings, an emblem of life. Another attitude of standing figures is that of bringing back one hand upon the breast, and holding a sceptre or other emblem.[1] The figures of mummied deities or persons

[1] Gliddon, 'Indigenous Races of Mankind,' 4to, 1857, p. 98 and foll.

generally represent the deceased wrapped in bandages, the arms emerging from them crossed, and holding emblems or other objects; often they have a kind of upright tablet or slab, resembling in some instances an obelisk, at the back, which is attached to them, and they stand on a square plinth or pedestal. In all these examples the parts between the legs in statues made of stone are reserved or not cut away, said to be owing to the manner of working by stunning out the limbs. The individual treatment made the hair fall in vast masses almost to the shoulder, or else in regular rows of curls from the centre of the head; the eyes, eyelashes, and brows prolonged in the direction of the ear; the eyelids sharp and shell-like; the hole of the ear on a level with the pupil of the eye; the lips strongly marked and slightly Nubian. The beard is conventional. The form on the whole is slender; the features calm, without sentiment or emotion. In bas-relief and cavo-rilievo profile is used by preference, as more distinct to the eye of the spectator. The drapery and other adjuncts varied according to time, rank, and circumstances.[1]—S. B.]

'The feet,' says Winkelmann,[2] 'of the Egyptian differ from those of the Greek statues in being more flat and broad, and in having the toes perfectly straight, with the joints as little indicated as in the fingers, and a gradual diminution in their length; nor is the little toe curved or bent under, as in those of the Greeks.' This last remark is just, and their mode of representing it accords with what they saw in nature; but the length of the toes of an Egyptian foot do not undergo a gradual diminution, the second being invariably made longer than any other, which too agrees with the natural form. The reason of this uniformity I have already explained; and it is probable that, if their genius had not been cramped by superstitious prejudice, the Egyptians would have excelled in painting and sculpture, and the imitation of the human figure have kept pace with their advancement in other points.[3]

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[1] 'Guide to the Egyptian Galleries of the British Museum,' pp. 15-18.

[2] Winkelmann, i. p. 110.

[3] Since this has been written, the excellence of Egyptian art in portraiture, and the high state which it had reached under the earlier dynasties, has been demonstrated by the remarkable statues discovered of the age of the 3rd and following dynasties. The sculptors, indeed, worked by a hieratic canon, which varied at different periods, but which only affected the proportions and not the mode of treatment. The oldest canon, which dates as early as the 3rd Dynasty, reckoned the proper height of the human figure from the sole of the foot to the crown of the head, and the subdivisions were made one-half or one-third of the foot. A change took place at the time of the 12th Dynasty, dividing the height into eighteen parts, or square of half the foot. This continued

No accidents, arising from the consequences of invasion or from any other cause, were ever capable of changing their fixed reverence for prescribed forms; nor do we find, after the Greek and Roman conquests, that any deviation from established custom was tolerated, or that any innovation was introduced from communication with those foreigners, however superior their art, and however evident its resemblance to the originals which nature daily presented to their eyes. After the accession of the Ptolemies, Greek art became well known in Egypt, and every opportunity was given to their artists to improve from the best models: but no change was effected by this intercourse with the Greeks; and when Adrian wished divine honours to be paid to his favourite Antinous, and statues to be erected to his memory, no form was admitted but that which religious usage had established and Egyptian models prescribed.

Though the general character of painting and sculpture continued the same, and a certain conventional mode of representing the human figure was universally adopted throughout the country, which was followed by every artist through successive ages, from the earliest Pharaonic era until the religion of Egypt was supplanted by the final establishment of Christianity, it is reasonable to suppose that several styles were introduced, and that the genius of artists varied considerably during that lengthened period. Plato's assertion is therefore to be taken in a limited and general sense, signifying that the Egyptians followed the same conventional forms, and that no nearer approach to the *beau idéal* of the human figure was made at one period than another. This is perfectly true; but every eye accustomed to Egyptian drawing readily perceives the difference between subjects executed during the Augustan age of art, the reigns of Rameses the Great and his father Osirei, and those of a Ptolemaic epoch. Truth may be wanting, as it necessarily must be where nature is not copied; but there are a grace and a boldness in the outline, as well as in the execution of the sculptures of the former period, which at once indicate the work of superior genius.

The hieroglyphics on the obelisks of that epoch proclaim the same fact; and in architecture, the temples erected by the great

till the 22nd Dynasty. The height above one-sixth of the foot was not reckoned. A third canon, which prevailed at the time of the 22nd Dynasty and subsequently, made twenty-one parts from the sole of the foot to the crown of the head. Although this change was not very great, it yet shows that Egyptian art was not one of entire immutability.—S. B.

Rameses far surpass in elegance and grandeur, in harmony of proportion and simplicity of style, the monuments of any previous or subsequent era. It cannot, however, be denied that in the time of Usertesen and at the commencement of the 18th Dynasty, Egyptian art flourished greatly, and monuments of that age also claim our admiration for taste, simplicity, and symmetry of details. And if some fanciful innovations were introduced in the buildings of the third Thothmes, they are attributable to momentary caprice, and not to be looked upon as a change in the architecture of that period. This I shall have occasion to mention hereafter.

The paintings at Beni-Hassan are certainly far inferior to those of the age of Rameses, or of the early part of the 18th Dynasty; but the style of the hieroglyphics on some other monuments of the Usertesen epoch, as the obelisk of Heliopolis, show that sculpture had greatly advanced at that remote period: and if historical bas-reliefs had been preserved, we might discover still more to prove the skill of the artists of the same era.

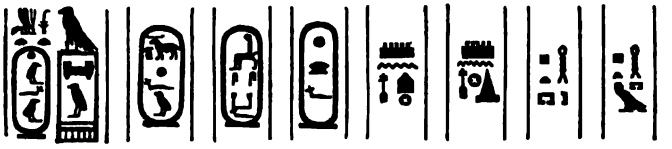
Few paintings or sculptures remain of an age prior to the accession of Usertesen I., whom I suppose to have been the contemporary of Joseph, and to have ascended the throne about the year 1740 B.C. The tombs in the vicinity of the Pyramids, and those I discovered hewn in the rock near Qasr e'Syád, the ancient Chenoboscion, are certainly anterior to the grottoes of Beni-Hassan; and the style of the masonry, as well as the names of the kings found there, show that the former were the places of sepulture of individuals who lived in the time of Suphis and his immediate successors. They, therefore, date about the year 2090 and 2050 B.C., upwards of a century before the arrival of Abraham in Egypt, if, as I suppose, the patriarch came to that country during the reign of Apappus.

It is evident that the tombs, built of stone, which stand in the area before and behind the Great Pyramid,[1] were erected after it had been commenced, if not completed, as their position is made to conform to that monument; and that those hewn in the rock at the same place were not of an older period, is shown by the style of the sculptures and the names of the same kings.

Among these we evidently perceive Suphis, or, as the hiero-

[1] It is remarkable that Memphis is styled 'the land of the pyramid.' Its Egyptian name in the hieroglyphics is Menefer, in Coptic Memfi, Manfi, Membe, Panoufi, or Mefi, being probably corrupted from Ma-ñ-nofri, 'the abode of good,' or as Plutarch calls it, 'the haven of good men.' It was also called Pthah-ei, the abode of Pthah. (Woodcut No. 419, *figs.* 5, 6, 7, 8.)

glyphics write it, Shufu or Khufu, a name easily converted into Suphis or Cheops, by adding *s*, the Greek termination.[1] But it is difficult, as I have already observed, to refer them to their proper epoch, or to fix their relative position in the list of kings. Nor can we decide whether the first two names here introduced



a 1 *b* 2 3 4 5 6 7 8

1. *a*, *b*, the name of Shufu, or Suphis. 2. Numba-khufu, or Chembes. 3. Asseskaf, or Shepeskaf. 4. Shafra, Khafra, or Kephren. 5, 6. The name of Memphis. 7, 8. (Memphis, or) Ptah-el, the abode of Ptah.

No. 419. *From the Tombs near the Pyramids.*

are both of Suphis, or if the second is of the founder of the other pyramid, whose name *Sen*-Suphis signifies the *brother* of Suphis; though they certainly appear to be of different kings, who lived about the same epoch.[2]

They occur again at Mount Sinai, and the former has the banner or square title given in the woodcut,[3] which would satisfactorily decide this question if it should ever be found with the other name. For these square banners, as I have already shown in a former work,[4] relate to the kings and not to the deities: and though the learned and ingenious Champollion expressed a different opinion in his 'Précis,'[5] he was afterwards convinced of this fact, which is now universally admitted.

The other names in these tombs are of the same remote period; and though there is no positive proof of their relative antiquity,

[1] As I have observed already.

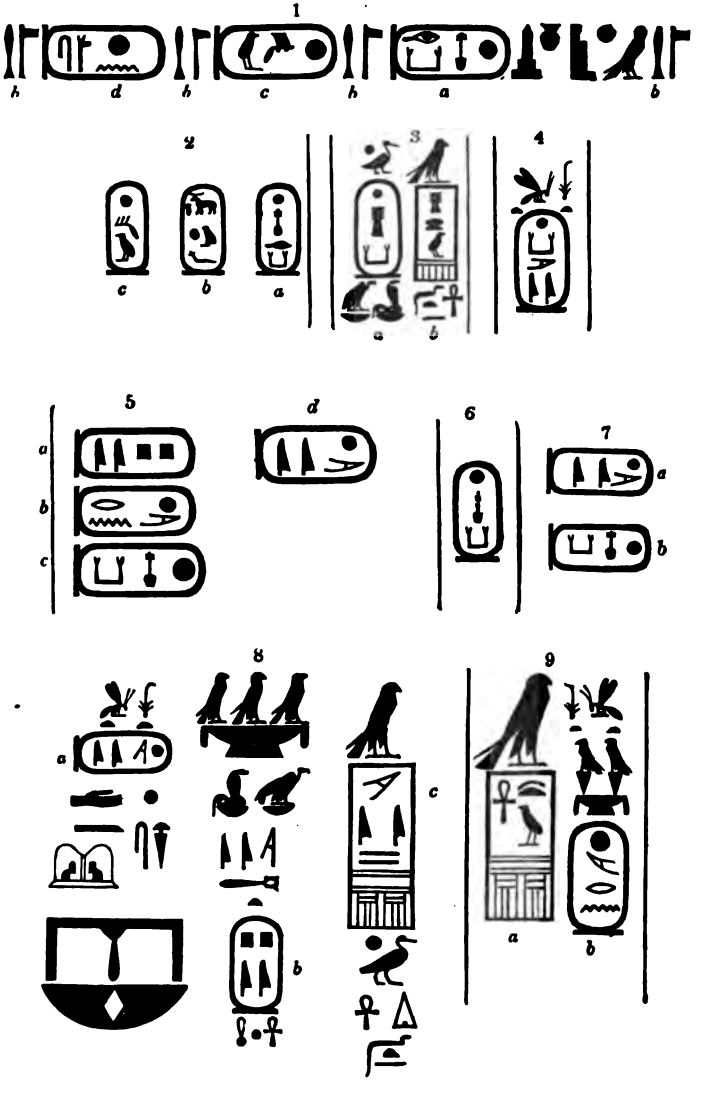
[2] The reading Sen-Suphis is now abandoned by all scholars, and considered to be Suphis II.

[3] Woodcut No. 419, *fig.* 1, *b*.

[4] Materia Hierog., Extracts from Hieroglyphical Subjects, p. 7: 'One more remark I have to offer, which, I confess, is not at all consonant with the ideas of Dr. Young and M. Champollion: that the square beneath the hawk, containing sometimes a bull and arm, sometimes other devices, does not refer to the god in whose honour the monument was raised, but to the king, whose name *always* follows it; and to this I have been led by the following circumstance:—wherever a king has erased the name of a predecessor, and inscribed his own in its stead, the hieroglyphics in this square have also been erased and changed: they cannot, therefore, refer to the god to whom the building was erected; otherwise the dedication and other sculptures containing his name would also be altered throughout the same monument. We should likewise find all the different names of kings in the same temple, preceded by a square containing the same devices, as relating to the deity of that temple, which is *not* the case.' I have also shown (in p. 8) that the *κρατέρος Ἀπόλλωνος* is Phrah, or Pharaoh, the king in the character of the sun. ('Egypt and Thebes,' p. 5.)

[5] 'Précis du Système hiéroglyphique,' p. 152.

we may conclude they belonged to the immediate successors of Suphis and his brother. It is remarkable that in some instances they are preceded by, and in others destitute of regal titles, and



No. 420. Names of ancient kings.

Fig. 1. Nefer kar ra ar. Raamakhu. Ra en user. 2. Ra amakhu. Khnumba Khufu. Nefer kar ra Ar; at the tombs near the Pyramids. 3. At Saqqára and Mount Sinai: Tat kara. 4. Rameri ka, at E'Sloot. 5, 6. At Chenoboscion. *a* has been cut over *d*. *a*, *b*, *c*, seem to have reigned in succession. 7. Pepi, Nefarkara; at Wady Maghára, near Mount Sinai. 8. Pepi. 9. Merenra, on the Kossayr road. The characters *b*, *b*, in *fig.* 1, signify 'priest.'

sometimes they appear to have the word 'priest' prefixed to them, like those at Chenoboscion. Three of the names, however, are so arranged, that we may suppose they indicate the order in which the kings ruled, though the arrangement is different in another part of the same tomb, where the name of Suphis, or of Sen-Suphis, intervenes between two of them.[1]

At Saqqára other tombs of the same early period occur, and some of the grottoes of E'Sioot probably date long before the accession of Usertesen. The former have a name, which, like most of these, bears in its simplicity the character of great antiquity, and in the latter is that of another ancient monarch; but neither of them[2] can be traced in the chamber of kings at Karnak.

The most interesting, after those at the Pyramids, are the names in the grottoes of Chenoboscion, not only from their antiquity,—'which,' as I have observed,[3] 'may vie with that of any other catacomb or monument in Egypt, if we except the Pyramids and the tombs in their vicinity,'—but from their being placed in chronological order, and from the circumstance of a king having erased one of them, and introduced his own name in its stead.[4] The title applied to them is not 'king,' but 'priest,' though the name is enclosed in an oval, the symbol of royalty; and that they really had the rank and appellation of king is shown by the same names occurring elsewhere with the usual royal prefix, and even the square title.

The first[5] of these is the name to which I alluded as having been erased to admit that of another monarch: it reads Ramai, or Maira, or 'the beloved of the sun.' The other is Papi,[6] a name which occurs in Egyptian history, being borne, according to Manetho, by the father of the priest Amenophis, who lived in the time of the Shepherds.[7]

Several tablets[8] and monumental records of king Papi[9] have been preserved; and on the rocks of the Kossayr road his name occurs in the same inscription with that of Ramai, who is elsewhere shown to have reigned sixteen years. It is remarkable

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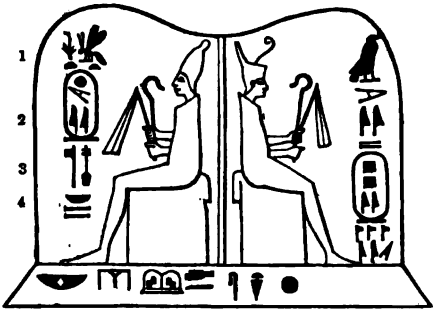
[1] Woodcut No. 420, *fig.* 1, *a* and *c*, and *fig.* 2, where *b* comes between *a* and *c*.
[2] *Figs.* 3, *a*, and 4.
[3] 'Egypt and Thebes,' pp. 401, 402.
[4] Woodcut No. 420, *fig.* 5, *a* and *c*, and *d* cut over by *a*.
[5] *Fig.* 5, *a*.
[6] *Fig.* 5, *d*.
[7] Joseph. contra Ap. i. 26. Cory's valuable collection of 'Ancient Fragments,' p. 176.
[8] There is one in the British Museum.
[9] Papi, or rather Pepi, is the king with the prænomen Maira, and the Pheops or Apappus of the Greek lists of the 6th Dynasty.—S. B.

that the two princes appear seated on their thrones in the hall of assembly, wearing, one the crown of the upper, the other that of the lower country;[1] showing either that they were contemporary sovereigns, one ruling at Thebes and the other at Memphis, or that Papi was the phonetic nomen of Ramai, and that they were the same monarch.

The former is a point which has been long contested in Egyptian history. Manetho evidently alludes to contemporary dynasties when he speaks of the kings of the Thebaïd and the rest of Egypt uniting in a common cause against the Shepherds;[2] and some chronologers have endeavoured to account for the long list of Egyptian kings by supposing that they ruled at the same time in different parts of the country. This opinion was suggested by the learned Sir John Masham; but, though correct as far as it applies to the early epochs of their history, there is sufficient evidence to prove that, from the time of Ames and Amenophis, the sovereignty of Upper and Lower Egypt continued to be vested in one person, whether the royal residence was at Thebes, Memphis, or Saïs; and even if Papi has erased the name of his contemporary Ramai, though it appears more probable that these are the prænomen and nomen of the same king, he may only have reunited the two crowns, which had been previously separated; for that Menes was sole monarch of all Egypt appears to have been universally allowed; and the division of the kingdom was, perhaps, owing to the preference of his son Athothes for the new capital founded by his father, which caused the court to be transferred to Memphis.



Figures of kings wearing the crown of Upper and Lower Egypt, with the names Ramai and Papi.
No. 421. *Kossayr road.*

In noticing these ancient names, it is necessary to repeat a remark I have previously had occasion to make,[3] that the custom of affixing a prænomen to the phonetic nomen was not introduced in early times, and that Menes and many other kings had merely

[1] Woodcut No. 421; see also woodcut No. 420, *figs.* 5 and 8.
[2] Cory, p. 171.
[3] Materia Hierogl., Extracts, p. 9.

one oval, containing their name, preceded by the title 'king,' 'lord of the world,' or other regal prefix. Ramai and Papi might therefore be different kings, each with a single oval; and, if they really are the same person, we have probably here the first instance of the introduction of a nomen: for there can be no doubt of the great antiquity of these names from the appearance of the grottoes and monuments where they occur, and the many collateral facts connected with the succeeding monarchs.

It may not be irrelevant to suggest that the hieroglyphics forming the name of Papi may also read Apap or Aphoph,[1] the Apophis or Apappus of Manetho and Eratosthenes. The era at which he lived, about a century after the time of Suphis, well accords with that of Papi; and if this be admitted, we have evidence of the style of sculpture at another fixed period, the arrival of Abraham in Egypt.

Both the names of Papi and Remeren are found in the chamber of kings at Karnak, and in other lists.

I have entered thus into detail upon the antiquity of these kings, with a view to ascertain a period when the art of painting and sculpture was in a less advanced state than under the kings of the 18th Dynasty. In the tombs near the Pyramids, and those of Chenoboscion, we find the same agricultural and other scenes represented, which usually occur in the sepulchral chambers of the Theban necropolis; and this gives an opportunity of judging of the comparative state of art at those two periods, which are separated by an interval of from five to six hundred years. The mode of treating those subjects is certainly very inferior even to that of the Usertesen era, particularly at Chenoboscion; but some allowance must be made for sculptures executed by provincial artists, who had not attained the excellence of those of Thebes and Memphis. And the same apology may be offered for the paintings of Beni-Hassan.

At the tombs of the Pyramids we likewise observe an inferiority of style, compared with the elegance and taste of the 18th Dynasty; and the epochs of Suphis, of Usertesen, of the early part of the 18th Dynasty, and of Seti and Rameses the Great, may be looked upon as the four known gradations through which the arts passed from mediocrity to excellence.

After the reign of Rameses the Great the arts remained stationary; the peaceful or inactive reigns of his successors

[1] Aphoph is 'a giant' in Coptic. It is translated 'Maximus.'

offered little encouragement to sculpture, and few opportunities were given to artists to improve, or even to exercise their talents. The ambition, the warlike spirit, or the indignation of the third Rameses, roused by the rebellion of the conquered provinces of Asia, which had been subdued and rendered tributary by his victorious predecessor, once more awakened the dormant genius of his country; and, as it frequently happens that great military events, as well as internal convulsions, produce great development of talent, we are not surprised that the success which attended his arms should have benefited the arts. The same remark applies, and in a greater degree, to the glorious era of Osirei and his son; and at no period of Egyptian history did the arms of the Pharaohs attain greater celebrity, or the arts reach a higher degree of perfection, than in the reign of the Great Rameses.

As soon as the third Rameses had returned from his successful expedition into Asia, sculpture and painting were called upon to commemorate the triumphs he had gained, and to record the victories of his country on the walls of the splendid edifices of Thebes. The sculptures in the palace-temple of Medeenet Haboo, erected by this monarch, display a degree of spirit which is only surpassed in those of his great namesake and predecessor; and so little do they fall short of the style of that period, that few who have not entered into the real feeling of Egyptian drawing can observe in what their inferiority consists.

In order that the reader may form some idea of the nature of the subjects represented on the walls of the Egyptian temples, and the profusion of painted sculptures with which they were ornamented, I shall introduce a description of the palace-temple of Rameses III. at Medeenet Haboo, from my 'Egypt and Thebes.'[1]

'On the east or north-east wall (of the inner area), Rameses is borne in his shrine or canopy, seated on a throne, ornamented with the figures of a lion and a sphinx, which is preceded by a hawk.[2] Behind him stand two figures of Truth[3] and Justice, with outspread wings. Twelve Egyptian princes, sons of the king,[4] bear the shrine; officers[5] wave flabella around the monarch;

[1] 'Egypt and Thebes,' p. 61 *et seq.*

[2] The emblem of the king as Phrah (Pharaoh).

[3] This refers to the double character of this goddess, my authority for whose name I have given in my 'Materia Hierog.' p. 45.

[4] They are always distinguished by a badge appended from their head-dress, enclosing, probably, the lock of hair, usually denoting son or child.

[5] Probably the Pterophori.

and others, of the sacerdotal order, attend on either side, carrying his arms and insignia. Four others follow; then six of the sons of the king, behind whom are two scribes and eight attendants of the military class, bearing stools and the steps of the throne.

'In another line are members of the sacerdotal order, four other of the king's sons, fan-bearers, and military scribes; a guard of soldiers bringing up the rear of the procession. Before the shrine, in one line, march six officers bearing sceptres and other insignia; in another, a scribe reads aloud the contents of a scroll he holds unfolded in his hand, preceded by two of the king's sons and two distinguished persons of the military and priestly orders. The rear of both these lines is closed by a pontiff,[1] who, turning round towards the shrine, burns incense before the monarch; and a band of music, composed of the trumpet, drum, double-pipe, and other instruments, with choristers, forms the van of the procession.

'The king, alighted from his throne, officiates as priest before the statue of Amen Khem, or Amenra *generator;* and, still wearing his helmet,[2] he presents libations and incense before the altar, which is loaded with flowers and other suitable offerings. The statue of the god, attended by officers bearing flabella,[3] is carried on a palanquin, covered with rich drapery, by twenty-two priests; behind it follow others, bringing the table and the altar of the deity. Before the statue is the sacred bull, followed by the king on foot, wearing the cap of the "lower country." Apart from the procession itself stands the queen, as a spectator of the ceremony; and before her, a scribe reads a scroll he has unfolded. A priest turns round to offer incense to the white bull; and another, clapping his hands, brings up the rear of a long procession of hieraphori, carrying standards, images, and other sacred emblems, and the foremost bear the statues of the king's ancestors.

'This part of the picture refers to the *coronation* of the king, who, in the hieroglyphics, is said to have "put on the crown of the upper and lower countries;" which the birds, flying to the four sides of the world, are to announce to the gods of the south, north, east, and west.[4] Such appears to be the meaning of this ceremony, rather than the *triumph* of the king; and the presence

[1] Not the 'eldest son of the king,' as M. Champollion supposes.

[2] Herod. ii. 151.

[3] The larger of these are, in fact, umbrellas; the smaller ones fans or fly-flaps. Flabella of a similar kind are carried before the Pope at the present day.

[4] [Or 'the four winds,' as in Mark xiii. 27; Matt. xxiv. 31.—G. W.] I am indebted for the construction of this part of it to M. Champollion's letter.

of Rameses, wearing for the *first time* the above-mentioned crown, and the great analogy between this and part of the text of the Rosetta Stone, fully justify this opinion.

'In the next compartment the president of the assembly reads a long invocation, the contents of which are contained in the hieroglyphic inscription above; and the six ears of corn[1] which the king, once more wearing his helmet, has cut with a golden sickle, are held out by a priest towards the deity. The white bull and images of the king's ancestors are deposited in his temple, in the presence of Amen Khem, the queen still witnessing the ceremony, which is concluded by an offering of incense and libation, made by Rameses to the statue of the god.

'In the lower compartment, on this side of the temple, is a procession of the arks of Amenra, Mut, and Khonsu (the Theban triad), which the king, whose ark is also carried[2] before him, comes to meet. In another part the gods Abtaut and Hat pour alternate emblems of life and power over the king; and, on the south wall, he is introduced by several divinities into the presence of the patron deities of the temple.

'In the upper part of the west wall Rameses makes offerings to Pthah Sokari and to Kneph; in another compartment he burns incense to the ark of Sokari; and near this is a tablet relating to the offerings made to the same deity. The ark is then borne by sixteen priests, with a pontiff and another of the sacerdotal order in attendance.

'The king afterwards joins in another procession, formed by eight of his sons and four chiefs, behind whom two priests turn round to offer incense to the monarch. The hawk, the emblem of the king, or of Horus, precedes them, and eighteen priests carry the sacred emblem of the god Nefer Atmu, which usually accompanies the ark of Sokari.

'On the south wall marches a long procession composed of hieraphori, bearing different standards, thrones, arks, and insignia, with musicians, who precede the king and his attendants. The figure of the deity is not introduced, perhaps intimating that this forms part of the religious pomp of the corresponding wall; and, from the circumstance of the king here wearing the *pshent*, it is not impossible it may also allude to his coronation.

'The commencement of the interesting historical subjects of Medeenet Haboo is in the south-west corner of this court, on the

[1] A fit emblem for an agricultural people. [2] Rosetta Stone.

inner face of the tower. Here Rameses, standing in his car, which his horses at full speed carry into the midst of the enemy's ranks, discharges his arrows on their flying infantry. The Egyptian chariots join in the pursuit; and a body of their allies[1] assist in slaughtering those who oppose them, or bind them as captives. The right hands of the slain are then cut off as trophies of victory.

'The sculptures on the west wall are a continuation of the scene. The Egyptian princes and generals conduct the "captive chiefs" into the presence of the king. He is seated at the back of his car, and the spirited horses are held by his attendants on foot. Large heaps of hands are placed before him, which an officer counts, one by one, as the other notes down their number on a scroll; each heap containing three thousand, and the total indicating the returns of the enemy's slain. The number of captives, reckoned 1000 in each line, is also mentioned in the hieroglyphics above, where the name of the Rebo[2] points out the nation against whom this war was carried on. Their flowing dresses, striped horizontally with blue or green bands on a white ground, and their long hair and aquiline nose, give them the character of an Eastern nation in the vicinity of Assyria and Persia, as their name reminds us of the Rhibii of Ptolemy, whom he places near the Caspian and the north bank of the Oxus. . . . A long hieroglyphic inscription is placed over the king; and a still longer tablet, occupying a great part of this wall, refers to the exploits of the Egyptian conqueror, and bears the date of his fifth year.

'The suite of this historical subject continues on the south wall. The king, returning victorious to Egypt, proceeds slowly in his car,[3] conducting in triumph the prisoners he has made, who walk beside and before it, three others being bound to the axle. Two of his sons attend as fan-bearers, and the several *regiments* of Egyptian infantry, with a corps of their allies, under the command of three other of these princes, marching in regular step and in the close array of disciplined troops, accompany their king. He arrives at Thebes, and presents his captives to Amenra and Mut, the deities of the city, who *compliment* him as usual on the victory he has gained, and the overthrow of the enemy he has "trampled beneath his feet."

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[1] The same whom this monarch is represented as having vanquished in another battle-scene of this temple.

[2] Now considered to be *Lebu*, that of the Libyans.—S. B.

[3] Plate V.

'On the north wall the king presents offerings to different gods, and below is an ornamental kind of border; composed of a procession of the king's sons and daughters. Four of the former, his immediate successors, bear the asp or basilisk, the emblem of majesty, and have their kingly ovals added to their names. . . . .

'If the sculptures of the area arrest the attention of the antiquary, or excite the admiration of the traveller, those of the exterior of this building are no less interesting in an historical point of view, and the north and east walls are covered with a profusion of the most varied and instructive subjects.

'At the north-east extremity of the end wall a trumpeter assembles the troops, who salute the king as he passes in his car. In the first compartment on the east side, Rameses advances at a slow pace in his chariot, attended by fan-bearers, and preceded by his troops. A lion, running at the side of the horses, reminds us of the account given of Osymandyas, who was said to have been accompanied in war by this animal: and another instance of it is met with at E'Dayr, in Nubia, among the sculptures of the second Rameses.

'*Second compartment.*—He continues his march,[1] his troops leading the van, and a trumpeter summons them to form for the attack.

'*Third compartment.*—The Rebo await the Egyptian invaders in the open field; the king presses forward in his car, and, drawing his bow, gives the signal for the attack. Several regiments of Egyptian archers, in close array, advance on different points and harass them with showers of arrows. The chariots rush to the charge; and a body of Asiatic allies[2] maintain the combat hand to hand with the Rebo, who are *at length* routed, and fly before their victorious aggressors. Some thousands are left dead on the field, whose hands,[3] being cut off, are brought by the Egyptian soldiers as proofs of their success. Three thousand five hundred and thirty-five hands and tongues form part of the registered returns; and two other heaps, and a third of tongues, containing each a somewhat larger number, are deposited under the superintendence of the chief officers, as

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[1] This evidently denotes the distance marched by the Egyptians before they reached the enemy's country.

[2] They are the Shairetana, a maritime people, whose features and high furred caps particularly denote their Asiatic origin; and a large amulet, suspended from their neck, reminds us of a custom very usual among the nations of the East. Woodcut No. 10, *fig.* 2, and woodcut No. 76, *fig.* 6, *a* and *b*.

[3] The Turks, at the present day, cut off the right ear.

trophies of victory. The monarch then alights from his chariot, and distributes rewards to his troops.

'In the next compartment the king's military secretaries draw up an account of the number of spears, bows, swords, and other arms taken from the enemy, which are laid before them; and mention seems to be made in the hieroglyphics of the horses that have been captured.

'Rameses then proceeds in his car, having his bow and sword in one hand and his whip in the other, indicating that his march still lies through an enemy's country. The van of his army is composed of a body of chariots; the infantry in close order, preceding the royal car, constitute the centre; and other similar corps form the flank and rear.

'They are again summoned by sound of trumpet to the attack of another Asiatic enemy;[1] and, in the next compartment, the Egyptian monarch gives orders for the charge of the hostile army, which is drawn up in the open plain. Assisted by their allies, the Shairetana, a maritime people armed with round bucklers and spears, they fall upon the undisciplined troops of the enemy, who after a short conflict are routed, and retreat in great disorder. The women endeavour to escape with their children on the first approach of the Egyptians, and retire in *plaustra*[2] drawn by oxen.[3] The flying chariots denote the greatness of the general panic, and the conquerors pursue them to the interior of the country. Here, while passing a large morass, the king is attacked by several lions,[4] one of which, transfixed with darts and arrows, he lays breathless beneath his horse's feet: another attempts to fly towards the jungle, but, receiving a last and fatal wound, writhes in the agony of approaching death.[5] A third springs up from behind his car, and the hero prepares to receive it and check its fury with his spear.

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[1] The Takkarui, or supposed Teucri.

[2] They were used in Egypt from the earliest times, and are mentioned in Genesis xlv. 19, &c. Strabo also speaks of them, lib. xvii. They are the more remarkable here, as putting us in mind of a custom very prevalent among some Eastern nations, of posting their waggons in the rear when going to battle. The Tartars of later times were noted for this custom.

[3] With the hump of Indian cattle. They seem to have been formerly very common in Egypt also, as they are at present in Kordofân and Sennâr.

[4] One author has supposed this to represent a lion chase; another has discovered in it the lion of Osymandyas, which *assisted* him in battle. We have frequently known sportsmen shoot their *own* dogs, but nothing justifies a similar opinion with regard to the king on this occasion.

[5] The position of the lion is very characteristic of the impotent fury of the disabled animal. Of the third little is seen but part of the fore-paw; the attitude of the king supplies the rest.

'Below this group is represented the march of the Egyptian army, with their allies, the Shairetana, the Sha . . . ., and a third corps, armed with clubs, whose form and character are but imperfectly preserved.

'The enemy, having continued their rapid retreat, take refuge in the ships of a maritime nation,[1] to whose country they have retired for shelter. The Egyptians attack them with a fleet of galleys . . . . and, bearing down their opponents, succeed in boarding them and taking several prisoners. One of the hostile galleys is upset; and the slingers in the tops, with the archers and spearmen on the prows, spread dismay among the few who resist. The king, trampling on the prostrate bodies of the enemy, and aided by a corps of bowmen, discharges from the shore a continued shower of arrows; and his attendants stand at a short distance with his chariot and horses, and await his return. Below this scene, the conquering army leads in triumph the prisoners of the two nations they have captured in the naval fight, and the amputated hands of the slain are laid in heaps before the military chiefs. . . . . In the next compartment, the king distributes rewards to his victorious troops, and then proceeding to Egypt, he conducts in triumph the captive Rebo and Tsekkaru, whom he offers to the Theban triad—Amen, Mut, and Khonsu.

'In the compartments above these historical scenes the king makes suitable offerings to the gods of Egypt; and, on the remaining part of the east wall, to the south of the second propylon, another war is represented.

'In the first picture the king, alighted from his chariot, armed with his spear and shield, and trampling on the prostrate bodies of the slain, besieges the fort of an Asiatic enemy, whom he forces to sue for peace. In the next he attacks a larger town surrounded by water. The Egyptians fell the trees in the woody country which surrounds it, probably to form testudoes and ladders for the assault. Some are applied by their comrades to the walls; and, while they reach their summit, the gates are broken open, and the enemy are driven from the ramparts, or precipitated over the parapet by the victorious assailants, who announce by sound of trumpet the capture of the place.

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[1] The Shairetana; part of the same people who joined the Egyptians as allies in this war. The expression 'maritime people' may imply merely that they lived near a large lake.

'In the third compartment, on the north face of the first propylon, Rameses attacks two large towns, the upper one of which is taken with but little resistance, the Egyptian troops having entered it and gained possession of the citadel. In the lower one the terrified inhabitants are engaged in rescuing their children from the approaching danger by raising them from the plain beneath to the ramparts of the outer wall. The last picture occupies the upper or north end of the east wall, where the king presents his prisoners to the gods of the temple. The western wall is covered by a large hieroglyphical tablet, recording offerings, made in the different months of the year, by Rameses III.'

This may serve to give an idea of the profusion of sculpture on the walls of an Egyptian temple. The whole was coloured; and this variety served as a relief to the otherwise sombre appearance of massive straight walls, which formed the exterior of Egyptian temples. All the architectural details were likewise painted; and though a person unaccustomed to see the walls of a large building so decorated might suppose the effect to be far from pleasing, no one who understands the harmony of colours will fail to admit that they perfectly understood their distribution and proper combinations, and that an Egyptian temple was greatly improved by the addition of painted sculptures.

In a work of so limited a scale as the present, it is impossible to give an adequate notion of a large temple whose details are so made up, or to give the general effect of this kind of *chiar-oscuro;* but an idea may be conveyed of some of the parts from the capitals of the columns.

The introduction of colour in architecture was not peculiar to the Egyptians: it was common to the Etrurians, and even to the Greeks. For though the writings of ancient authors afford no decided evidence of the practice in Greece, and the passages adduced in support of it from Vitruvius,[1] Pliny,[2] and Pausanias,[3] are neither satisfactory nor conclusive, the fact of colour having been found on the monuments of Attica and Sicily is so well authenticated, that no doubt can be entertained of certain parts,

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[1] Vitruv. iv. 2; lib. vii. c. 9 and c. 5, where he shows the bad taste of the Romans in their mode of painting their houses.

[2] Plin. xxxvi. 23; also lib. xxxv. c. 8, where he again mentions Pannæus; and, after saying Phidias was originally a painter, adds that Pannæus assisted in painting the figure of Olympian Jupiter.

[3] Pausan. lib. v. Elis, c. xi. He mentions the works of the brother of Phidias, whom he calls Panénus.

at least, of Greek temples, of the oldest and even of the best periods, having been painted.

In the temple of Theseus at Athens vestiges of colours are seen on the ground of the frieze, on the figures themselves, and on the ornamental details.[1] The Parthenon presents remains of painting on some members of the cornice; and the ground of the frieze, above the interior of the peristyle, containing the reliefs of the Panathenaic procession, was blue. The propylæa of the Acropolis, the Ionic temple on the Ilissus, and the Choragic monument of Lysicrates also offer traces of colour; and vestiges of red, blue, and green have been discovered on the metopes of a temple at Selinus in Sicily, by Messrs. Angell and Harris, who excavated and examined the site of that ancient city in 1823. In one of these, the figure of Minerva has the eyes and eyebrows painted;[2] her drapery and the girdle of Perseus are also ornamented with coloured devices, and the whole ground of this and two other of the metopes is red.

Red and blue seem to have been generally used for the ground; and these two, with green, were the principal colours introduced in Greek architecture, many members of which were also gilt, as the shields, guttæ, and other prominent details; and many suppose that the shafts of columns were always white, the coloured parts being confined to the entablature and pediment.

In Egyptian buildings, indeed, it sometimes happened that the shafts of columns were merely covered with white stucco, without any ornament, and even without the usual line of hieroglyphics; and the same custom of coating certain kinds of stone with stucco was common in Greece. The Egyptians always put this layer of stucco, or paint, over stone, whatever its quality might be, and we are surprised to find the beautiful granite of obelisks and other monuments concealed in a similar manner; the sculptures engraved upon them being also tinted either green, blue, red, or other colour, and frequently one and the same throughout.

Whenever they employed sandstone, it was absolutely necessary to cover it with a surface of a smoother and less absorbent nature, to prevent the colour being too readily imbibed by so porous a stone; and a coat of calcareous composition was

[1] 'Transactions of the Institute of Brit. Architects,' on the Polychromy of Greek Architecture, translated from the German of Kugler, by W. R. Hamilton, Esq., p. 85 *et seq.*

[2] 'The Sculptured Metopes of Selinus,' by Messrs. Harris and Angell, p. 49.

laid on before the paint was applied. When the subject was sculptured, either in relief or intaglio, the stone was coated, after the figures were cut, with the same substance, to receive the final colouring; and it had the additional advantage of enabling the artist to finish the figures and other objects with a precision and delicacy in vain to be expected on the rough and absorbent surface of sandstone.

The Egyptians mixed their paint with water, and it is probable that a little portion of gum was sometimes added, to render it more tenacious and adhesive. In most instances we find red, green, and blue adopted; a union which, for all subjects, and in all parts of Egypt, was a particular favourite · when black was introduced, yellow was added to counteract or harmonise with it; and in like manner they sought for every hue its congenial companion.

In the examination of the colours used for painting the walls, while at Thebes, I was led to the conjecture,[1] that the reds and yellows were ochres; the blues and greens metallic, and prepared from copper; the black, an ivory or bone black; and the white, a finely-levigated and prepared lime. I have since been favoured with an analysis of those brought by me from Thebes, which my friend Dr. Ure has had the kindness to make, and which I am happy in being able to introduce.

'The colours are green, blue, red, black, yellow, and white. 1st. The green pigment, scraped from the painting in distemper, resists the solvent action of muriatic acid, but becomes thereby of a brilliant blue colour, in consequence of the abstraction of a small portion of yellow ochreous matter. The residuary blue powder has a sandy texture; and when viewed in the microscope is seen to consist of small particles of blue glass. On fusing this vitreous matter with potash, digesting the compound in diluted muriatic acid, and treating the solution with water of ammonia in excess, the presence of copper becomes manifest. A certain portion of precipitate fell, which, being dissolved in muriatic acid and tested, proved to be oxide of iron. We may hence conclude that the green pigment is a mixture of a little ochre with a pulverulent glass, made by vitrifying the oxides of copper and iron with sand and soda. The vitreous green coat upon the small Osiris figures, so numerous in the Egyptain tombs of the earliest times, is a similar composition.

[1] 'Egypt and Thebes,' p. 443.

'The green colour, washed from the stone with a sponge and afterwards evaporated, consists of blue glass in powder, mixed with a little ochre, and particles of colourless glass, to which it owes its brighter hue.

'2. The blue[1] pigment scraped from the stone is a pulverulent blue glass of like composition, without the ochreous admixture, brightened with a little of the chalky matter used in the distemper preparation.

'3. The red pigment obtained by washing the coloured stone in the tombs of the kings with a wet sponge, and evaporating the liquid to dryness, when treated with water, evinces the presence of glutinous gummy matter.[2] It dissolves readily, in a great measure, in muriatic acid, and affords muriates of iron and alumina. It is merely a red earthy bole.

'4. The black pigment, washed off the stone in the same manner with a sponge, is not affected by digestion in rectified petroleum, and contains, therefore, no bitumen. It softens in hot water immediately, and dissolves readily into a black liquid, which evidently contains a gummy or mucilaginous matter. When exposed to a red heat, upon a slip of platinum, it takes fire, and burns with a fleeting white flame. The remaining matter is difficult to incinerate, even under the blowpipe, and then leaves a bulky grey ash. This residuum dissolves, with very little effervescence, in hot muriatic acid. When ammonia is dropped into this solution it causes a bulky precipitate, which does not re-dissolve in excess of solution of potash. These phenomena show the pigment in question to be bone-black (mixed with a little gum). By another experiment, I found in it traces of iron.

'5. The white pigment, scraped from the stone in the tombs of the kings, is nothing but a very pure chalk, containing hardly any alumina, and a mere trace of iron.

'6. The yellow pigment is a yellow iron ochre.'

The oldest Egyptian sculptures on all large monuments were in low relief, and, as usual, at every period, painted; obelisks and everything carved in hard stone,[3] some funeral tablets

[1] It is remarkable how much the Egyptian method of making this colour resembled in principle that of our smalt. It agrees with the false *cyanus* of Theophrastus (s. 98), invented by an Egyptian king, which, he says, was laid on thicker than the native (or lapis-lazuli). Pliny confounds the two (xxxvii. 9).

[2] The Egyptian colours contain gum; but the quantity in these specimens was owing to my having added it to form them into cakes.

[3] Some few granite monuments are in relief, but they are rare.

Fig. 1.

Fig. 2.

Fig. 5.

Fig. 6.

Fig. 7.

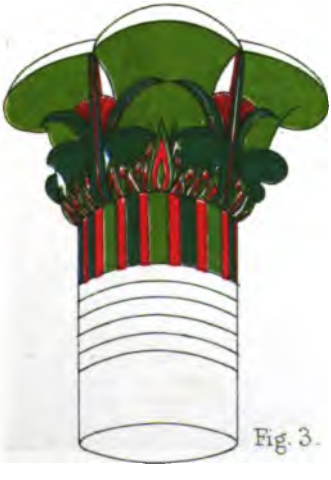

Fig. 3.

Fig. 4.

CAPITALS of COLUMNS
and a Piece of coloured Glass (Figs 5.6.7.)

and other small objects being in intaglio. This style continued in vogue until the time of Rameses II., who began to introduce intaglio generally on large monuments, and even his battle-scenes at Karnak and the Memnonium are executed in this manner. The reliefs were little raised above the level of the wall; they had generally a flat surface, the edges softly rounded off, in effect far surpassing the intaglio; and it is to be regretted that the best epoch of art, when design and execution were in their zenith, should have abandoned a style so superior, which, too, would have improved in proportion to the advancement of that period.

Intaglio continued to be generally employed until the accession of the 26th Dynasty, when the low relief was again introduced; and in the monuments of Psammatichus and Amasis are numerous instances of the revival of the ancient style. This was afterwards universally adopted, and no return to intaglio on large monuments was attempted, either in the Ptolemaic or Roman periods.

The intaglio introduced by Rameses may, perhaps, be denominated *intaglio rilievato*, or relieved intaglio. The sides of the *incavo*, which are perpendicular, are cut to a considerable depth, and from that part to the centre of the figure (or whatever is represented) is a gradual swell, the centre being frequently on a level with the surface of the wall. On this all the parts of the dress, features, or devices are delineated and painted; and even the perpendicular sides are ornamented in a corresponding manner, by continuing upon them the adjoining details.[1]

In the reign of Rameses III. a change was made in the mode of sculpturing the intaglios, which, as I have already observed, consisted in carving the lower side to a great depth, while the upper face inclined gradually from the surface of the wall till it reached the innermost part of the intaglio; it was principally done in the hieroglyphics, in order to enable a person standing immediately beneath, and close to the wall on which they were sculptured, to distinguish and read them; and the details upon the perpendicular sides, above mentioned, had the same effect.

It was a peculiarity of style not generally imitated by the successors of Rameses III., and hieroglyphics bearing this character may serve to fix the date of monuments, wherever they

[1] One of the great advantages of this style is that it protects the sculptures by preventing the bas-relief or field from destructive influences, such as the desert sand or wilful mutilation.—S. B.

are found, to the age of that monarch. After his reign no great encouragement appears to have been given to the arts: the subjects represented on the few monuments of the epoch intervening between his death and the succession of the 26th Dynasty are principally confined to sacred subjects, in which no display of talent is shown; and the records of Sheshonk's victories at Karnak are far from partaking of the vigour of former times, either in style or in the mode of treating the subject.

After the accession of the 26th Dynasty some attempt was made to revive the arts, which had been long neglected; and, independent of the patronage of Government, the wealth of private individuals was liberally employed in their encouragement. Public buildings were erected in many parts of Egypt, and beautified with rich sculpture; the city of Saïs, the royal residence of the Pharaohs of that dynasty, was adorned with the utmost magnificence; and extensive additions were made to the temples of Memphis, and even to those of the distant Thebes.[1]

The fresh impulse thus given to art was not without effect: the sculptures of that period exhibit an elegance and beauty which might even induce some to consider them equal to the productions of an earlier age; and in the tombs of the Assaseéf, at Thebes, are many admirable specimens of Egyptian art. To those, however, who understand the true feeling of this peculiar school, it is evident, that though in minuteness and finish they are deserving of the highest commendation, yet, in grandeur of conception and in boldness of execution, they fall far short of the sculptures of Osirei [2] and the second Rameses.

In forming an opinion of the different styles of Egyptian sculpture, it is frequently difficult for an unpractised eye to decide upon their peculiar merits, or their respective ages; and in nothing, perhaps, has this been more fully demonstrated than in the Isiac Table, now at Turin. Everyone acquainted with Egyptian art must be struck at first sight with the very modern date and Roman origin of this monument; and the position of the hieroglyphics shows that the maker of it was ignorant of the subject he was treating. I should, therefore, not have thought it necessary to notice so palpable a forgery, had not the learned Winkelmann censured Bishop Warburton for a judicious remark,

[1] The favourite material of the period was basalt, black and green, especially the last variety. There is a great suppleness and softness in the limbs, but not the display of that anatomical knowledge of the form visible in the older efforts of Egyptian sculpture. The canon of proportion, too, is changed.—S. B.

[2] Seti I.

in which he is borne out by fact and for which he deserves great credit. 'I cannot help,' says Winkelmann,[1] 'here noticing an error of Warburton, who advances, that the famous Isiac Table of bronze, inlaid with figures in silver, is a work made at Rome. His opinion is destitute of foundation, and he only appears to have adopted it because it suited his own system. Be it as it may, this monument has all the character of the most ancient Egyptian style.' Justice must be done to the judgment of Warburton, and a remark of this kind, made by a person of Winkelmann's reputation, is of too great weight to pass unnoticed.

The invasion of Cambyses, as I have already stated, struck a deathblow to the arts in Egypt. Sculptors, painters, and artisans of every description, were taken from their country, and sent to Persia by the victors to embellish the monuments of their enemies with the records of their own misfortunes; and in spite of the encouragement afterwards given by the Ptolemies, the spark of genius, then so nearly extinguished, could not be rekindled, and Egypt was doomed to witness the total decadence of those arts for which she had been long renowned.

The sculptures of the Ptolemaic period are coarse and heavy, deficient in grace and spirit, and totally wanting in the character of the true Egyptian school, at the same time that they partake of nothing Greek either in form or feeling; for the Egyptians never borrowed any notions on those points from the foreigners with whom they had so long an intercourse throughout the period of Greek and Roman[2] rule. The sculptures executed in the time of the Cæsars are still more degraded in every respect; and so low did they fall at this period, that many do not claim a rank above those of the humblest village tombstone. Still the architecture continued to be grand and majestic, and many of the monuments of a Ptolemaic and Roman era merit a better style of sculpture.

'Architecture,' as I have elsewhere observed,[3] 'more dependent on adherence to certain rules than the sister art, was naturally less speedily affected by the decline of taste and

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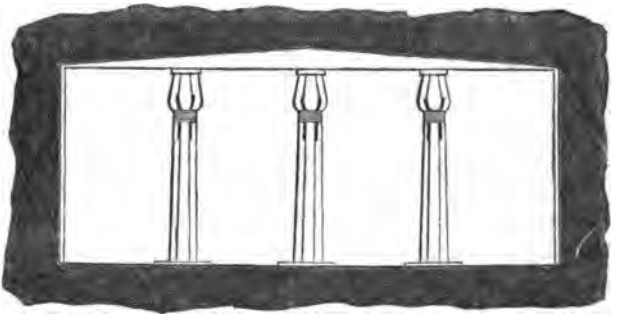
[1] Winkelmann, 'Hist. de l'Art,' lib. ii. c. 1, s. 46.

[2] There are very few statues extant, except of monarchs of the Ptolemaic period, and they all show the great influence of Greek art and type. The bas-reliefs follow more closely the Egyptian style. The architecture was florid, and stands in about the same relation to the earlier styles as the Corinthian to the Doric.—S. B.

[3] 'Egypt and Thebes,' p. 163.

ingenuity of its professors; and as long as encouragement was held out to their exertions, the grandest edifices might be constructed from mere imitation, or from the knowledge of the means necessary for their execution. But this could never be the case with sculpture, which had so many more requisites than previous example or long-established custom; nor could success be attained by the routine of mechanism, or the servile imitation of former models.'

It is remarkable that the architecture even of the early time of Usertesen far excelled the sculpture of that day; and the grace and simplicity of the grottoes at Beni-Hassan, which call to mind in their elegant columns the Doric character, must be highly admired, even though seen amidst the grandeur of the monuments of Rameses. These columns are 3 feet 4 inches in



No. 422. Section of one of the *southern* grottoes of Beni-Hassan.

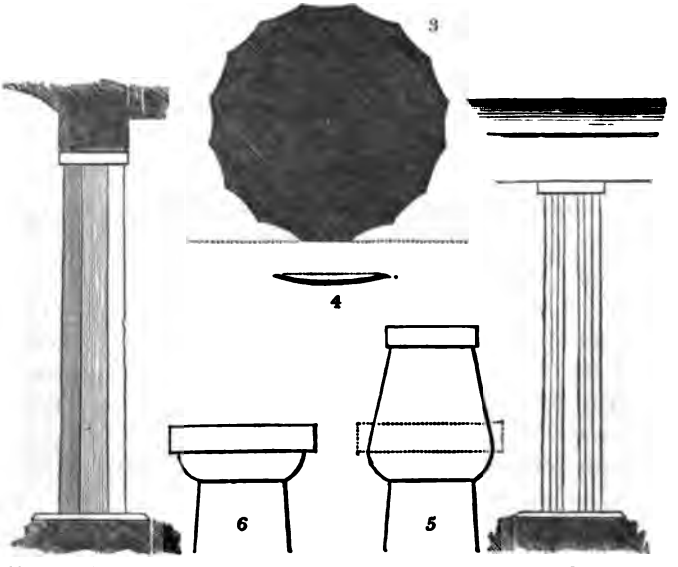
diameter, and 16 feet 8½ inches high;[1] they have sixteen faces or grooves, each about 8 inches wide, and so slight and elegant that their depth does not exceed half an inch. One of the faces, which is not hollowed into a groove, is left for the introduction of a column of hieroglyphics.

The roofs of some of the grottoes of Beni-Hassan are cut into a slight segment of a circle, in imitation of the arch, which, as I have had occasion to observe, was probably known in Egypt at this early period; and it is remarkable that the walls are stained and sprinkled with colour, to give them the appearance of red granite. This is the general character of the larger and northernmost grottoes; the others differ, both in the form and style of the columns, and in their general appearance; but the transverse section of one of them will suffice to show the elegance

[1] Woodcut No. 423, *figs.* 2 and 3.

of their depressed pediment—which extends, in lieu of architrave, over the columns of the interior—and the simplicity of their general effect.

The most favourite Egyptian capitals[1] were those in form of the full-blown water-plant, supposed by some to be the papyrus, which was emblematic of the lower country, and the unopened bud of the same, or of the lotus; and that this last gave the original idea of the Doric capital is not improbable, since, by



No. 423. 1 2

Fig. 1. Columns in the portico of the *northern* grottoes of Beni-Hassan.
2. Columns of the interior.
3. Horizontal section of *fig.* 2, showing the grooves.
4. One of the grooves on a larger scale.
5. An Egyptian capital, which seems to have been the origin of the Doric, *fig.* 6.

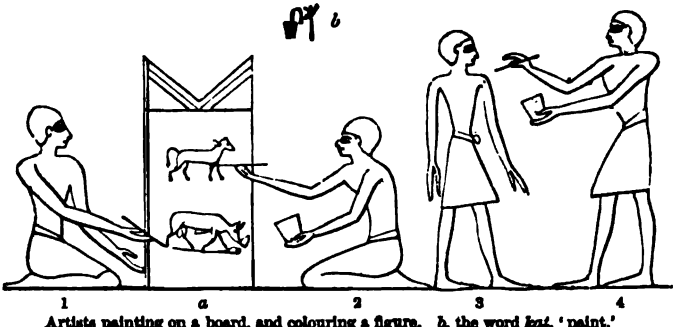
removing the upper part and bringing down the abacus, it presents the same appearance as the early Greek style.[2]

Of painting, apart from sculpture, and of the excellence to which it attained in Egypt, we can form no accurate opinion, nothing having come down to us of a Pharaonic period, or of that epoch when the arts were at their zenith in Egypt; but that already in the time of Usertesen they painted on board, is shown by one of the subjects at Beni-Hassan, where two artists are

[1] Capitals of columns, Plate XIV. There is a very valuable 'Synopsis of the Classification of Ptolemaic Capitals,' among the newly-acquired Hay Collection in the MS. department of the British Museum.—S. B.

[2] Woodcut No. 423, *figs.* 5 and 6.

engaged on a picture, representing a calf and an antelope overtaken by a dog. The painter holds his brush in one hand, and his palette or saucer of colour in the other; but, though the boards stand upright, there is no indication of a contrivance to steady or support the hand.



No. 424. Artists painting on a board, and colouring a figure. *b*, the word *kat*, 'paint.' *Beni-Hassan.*

Mention is made of an Egyptian painting by Herodotus,[1] who tells us that Amasis sent a portrait of himself to Cyrene, probably on wood; and some, of uncertain period, have been found in the tombs of Thebes. Three of these are preserved in the British Museum, but they are evidently of Greek time, and, perhaps, even after the conquest of Egypt by the Romans. It is therefore vain to speculate on the nature of their painting, or their skill in this branch of art; and though some of the portraits taken from the mummies may prove that encaustic painting with wax and naphtha was adopted in Egypt, the time when it was first known there is uncertain, nor can we conclude from a specimen of Greek time that the same was practised in a Pharaonic age.

Pliny states, in his chapter on Inventions,[2] that 'Gyges, a Lydian, was the earliest painter in Egypt; and Eucheir, a cousin of Dædalus, according to Aristotle, the first in Greece; or, as Theophrastus thinks, Polygnotus the Athenian.' But the painting represented at Beni-Hassan evidently dates before any of those artists. Pliny, in another place,[3] says, 'The origin of painting is uncertain: the Egyptians pretend that it was invented by them 6000 years before it passed into Greece; a vain boast, as everyone will allow.' It must, however, be admitted that all the

[1] Herod. ii. 182.
[2] Plin. vii. 56.
[3] Plin. xxxv. 3. He also mentions line drawings as an invention of the Egyptians.

arts were cultivated in Egypt long before Greece existed as a nation; and the remark he afterwards makes,[1] that painting was unknown at the period of the Trojan war, can only be applied to the Greeks, as is shown by the same unquestionable authority at Beni-Hassan, of the remote era of Usertesen, who lived upwards of 1700 years before our era, between five and six hundred years previous to the taking of Troy.

The skill of the Egyptian artists in drawing bold and clear outlines is, perhaps, more worthy of admiration than anything connected with this branch of art; and I have had occasion to notice the freedom with which the figures in the unfinished part of Belzoni's tomb at Thebes are sketched. I have also noticed[2] the manner in which they began those drawings previous to their being sculptured and painted.

The walls having been ruled in red squares, 'the position of the figures was decided by the artist, who traced them roughly with a red colour; and the draughtsman then carefully sketched the outlines in black, and submitted them to the inspection of the former, who altered (as appears in some few instances here) those parts which he deemed deficient in proportion or correctness of attitude; and in that state they were left for the chisel of the sculptor.' Sometimes the squares were dispensed with, and the subjects were drawn by the eye, which appears to have been the case with many of those in the tomb here alluded to.

In some pictures we observe certain conventional rules of drawing which are singular, and perhaps confined to the Egyptians and Chinese, an instance of which may be seen in the frontispiece to my 'Materia Hieroglyphica.' The subject represents Amen-ra, the god of Thebes, seated on his throne, and presenting the emblem of life to Rameses the Great, who stands before him. The deities Khonsu and Bubastis are also present. The god being considered the principal figure, every means are used to prevent the intervention of any object which might conceal or break through its outline: the leg, therefore, of the king, though in reality coming in front, is placed behind his foot; but as the base of the throne is of less importance than the leg of the king, the latter is continued in an unbroken line to the bottom of the picture; and the same is observed in his hand, which, being an object of more consequence in the subject than the tail of the deity, is not subjected to any interruption. The Egyptians

[1] Plin. xxxv. 3, at the end.

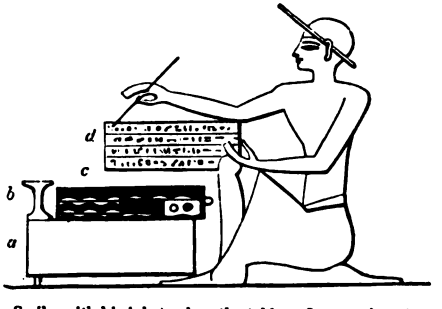
[2] 'Egypt and Thebes,' p. 107.

rarely used perspective, either in figures or in the representation of inanimate objects; and those on the same plane, instead of being shown one behind the other, were placed in succession one above the other, on the perpendicular wall.

Of the quality of the pencils they used for drawing and painting it is difficult to form any opinion. Those generally employed for writing were a reed or rush,[1] many of which have been found with the tablets or inkstands belonging to the scribes; and with these, too, they probably sketched the figures in red and black upon the stone or stucco of the walls. To put in the colour, we may suppose that brushes of some kind were used; but the minute scale on which the subjects are indicated in the sculptures prevents our deciding the question.

A scribe writing on a tablet. *c* and *d* are two cases for carrying writing materials. *Thebes.* No. 425.

Habits among men of similar occupations are frequently alike, even in the most distant countries; and we find it was not unusual for an Egyptian artist or scribe to put his reed pencil behind his ear when engaged in examining the effect of his painting, or listening to a person on business, as in the modern studio or the counting-house of a European town.



Scribe with his inkstand on the table. One pen is put behind his ear, and he is writing with another. *Thebes.* No. 426.

Painters and scribes deposited their writing implements in a box with a pendent leather top, which was tied up with a loop or thong; and a handle or strap was fastened to the side to enable them to carry it more conveniently. Their ordinary wooden tablet was furnished with two or more cavities for holding the colours, a tube in the centre containing the pens or reeds; and certain memoranda were frequently written at the back of it

[1] Called *kash*; they were frayed at one end, but not pointed. Brushes of reeds and fibres were used for some of the coarser painting of the walls.—S. B.

when a large piece of papyrus, or the wooden slàb, was not required.[1]

Of the architecture, plans, and distribution of their dwelling-houses I have already treated, and also of the great use they made of crude brick for this purpose; those burnt in a kiln being rarely employed except in damp situations.[2] The bricks were formed in a simple mould, frequently bearing a Government stamp; and the number of persons employed in their manufacture is readily accounted for by the great demand for those materials in the construction of dwelling-houses and ordinary buildings, stone being confined principally to the temples and other monuments connected with religion; but this has been already noticed, and I now merely introduce the subject of crude brick in connection with the arch.

I have frequently had occasion to mention the antiquity of the arch,[3] and have shown that it existed of brick in the reign of Amenophis I., as early as the year 1540 before our era,[4] and of stone in the time of the second Psammatichus, B.C. 600.[5] I have suggested the probability of its having owed its invention to the small quantity of wood in Egypt, and the consequent expense of roofing with timber, and have ventured to conclude from the paintings at Beni-Hassan that vaulted buildings were made in Egypt as early as the reign of Usertesen, the contemporary of Joseph, who lived between three and four thousand years ago.[6]

The age of the crude brick pyramids of Memphis and the Arsinoïte nome is unknown. Herodotus tells us the first built of those materials was erected by Asychis, whom he makes the predecessor of Anysis, the contemporary of Sabaco, thus limiting its date to the ninth century before our era; and consequently, as I have observed, making it posterior to those of Thebes, which were erected about the period of the 18th Dynasty.

It is, however, far more probable, that a long period intervened between the reigns of Asychis and Anysis; and that the former lived many ages before Bocchoris, which is confirmed by another passage in Herodotus, placing him as the immediate

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[1] The Egyptians wrote on various materials,—papyrus for letters, religious and other writs; slices of stones were used as slates for copies and memoranda; wood, either bare or else covered with a layer of stucco, for copies of acts or regulations to hang up to the wall.—S. B.

[2] The southern extremity of the quay, near the temple of Luxor, at Thebes, is built of burnt brick. Crude bricks were common in many Eastern countries, as at Babylon and other places.

[3] The newly-discovered rudimentary arch of the age of the 5th Dynasty assigns it to a still earlier age.—S. B.

[4] 'Egypt and Thebes,' pp. 81 and 126.

[5] Ibid. p. 337.

successor of Mycerinus, the son of Cheops; and the ruinous and crumbled appearance of the brick pyramids of Dashoor fully justifies the opinion that they were erected very soon after the stone ones, near which they stand, and to which the inscription of Asychis forbade the spectator to compare them. They have had chambers, the lower parts of whose side walls are still visible; and we may be permitted to conclude that they were arched, like those of Thebes.

If, then, the brick pyramids of Memphis were erected by the successor of the son of Cheops, and the chambers were, as I suppose, vaulted, the invention of the arch will be carried back nearly 700 years prior to the reign of Amenophis I., about 2020 years before our era. This is a conjecture on which I do not wish to insist; we may, for the present, be satisfied with the fact that this style of building was in common use 3370 years ago, and rejoice that the name of Amenophis I. has been preserved on the stucco coating the interior of a vaulted tomb at Thebes, to announce it, and to silence the incredulity of a sceptic.[1]

The appearance and position of other tombs in the vicinity of the Ptolemaic temple of Dayr el Medeeneh at Thebes had always convinced me that their vaulted roofs were of the time of Amenophis I. and his immediate successors; but, however satisfied on this point myself, I could find no name to sanction my opinion, or to justify me in its assertion, until accident threw in my way the building in question,[2] while prosecuting my researches there in 1827; and another tomb has since been discovered of similar construction, which presents the ovals of the third Thothmes.

The pyramids of Gebel Birkel (Napata) and Dunkalah (Meroë) are of uncertain date; but there is every reason to believe them, as well as the small temples attached to their front, of an age long anterior to the Ptolemies, or, as Hoskins thinks, 'of a far more ancient date than Tirhakah;'[3] and we there find stone arches, both round and *pointed*, some of which are built with a keystone,[4] on the same principle as our own.

At Memphis, too, near the modern village of Saqqára, is a

[1] [None of the false arches cut in horizontal stones are as old as some of the true arches of crude brick at Thebes of the age of Amenoph. Canina agrees with me that the use of brick led to the invention of the arch.—G. W.]

[2] 'Materia Hieroglyphica,' p. 80.

[3] Hoskins' 'Ethiopia,' p. 156.

[4] The keystone is mentioned by Seneca (Epist. 90). Many round and pointed arches of a late time have been built without it, and the principle of the arch does not depend upon it, but on the adjustment of *all* the stones.

tomb, with two large vaulted chambers, whose roofs display in every part the name and sculptures of the second Psammatichus. They are cut in the limestone rock; and in order to secure the roof, which is of a friable nature, they are lined, if I may so call it, with an arch, as our modern tunnels. The arch is of stone, and presents a small and graceful segment of a circle, having a span of 7 feet 10 inches, and a height of 2 feet 8½ inches.

Numerous crude brick arches, of different dates, exist in Thebes,[1] besides the small pyramids already alluded to, some of which are of very beautiful construction. The most remarkable are the doorways of the enclosures surrounding the tombs in the Assaseéf, which are composed of two or more concentric semicircles of brick, as well constructed as any of the present day. They are of the time of Psammatichus and other princes of the 26th Dynasty, immediately before the invasion of Cambyses. All the bricks radiate to a common centre: they are occasionally pared off at the lower part, to allow for the curve of the arch, and sometimes the builders were contented to put in a piece of stone to fill up the increased space between the upper edges of the bricks. In those roofs of houses or tombs which were made with less care, and required less solidity, the bricks were placed longitudinally, in the direction of the curve of the vault, and the lower ends were then cut away considerably to allow for the greater opening between them; and many were grooved at the sides, in order to retain a greater quantity of mortar between their united surfaces.

Though the oldest stone arch, whose age has been positively ascertained, dates only in the time of Psammatichus, we cannot suppose that the use of stone was not adopted by the Egyptians for that style of building previous to his reign, even if the arches of the pyramids in Ethiopia should prove not to be anterior to the same era. Nor does the absence of the arch in temples and other large buildings excite our surprise when we consider the style of Egyptian monuments; and no one who understands the character of their architecture could wish for its introduction.[2]

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[1] One is introduced into woodcut No. 427, *fig.* 1.

[2] [Even in Roman times, when conquered Egypt had completely fallen, and her taste, too, had passed away, the universal preference for the arch was not allowed to intrude into her sacred edifices; and prejudice forbade it even in the small out-of-the-way temples of the Oases—except in a position where it did not interfere with the character of the building. See my 'Architecture of Ancient Egypt.'—G. W.]

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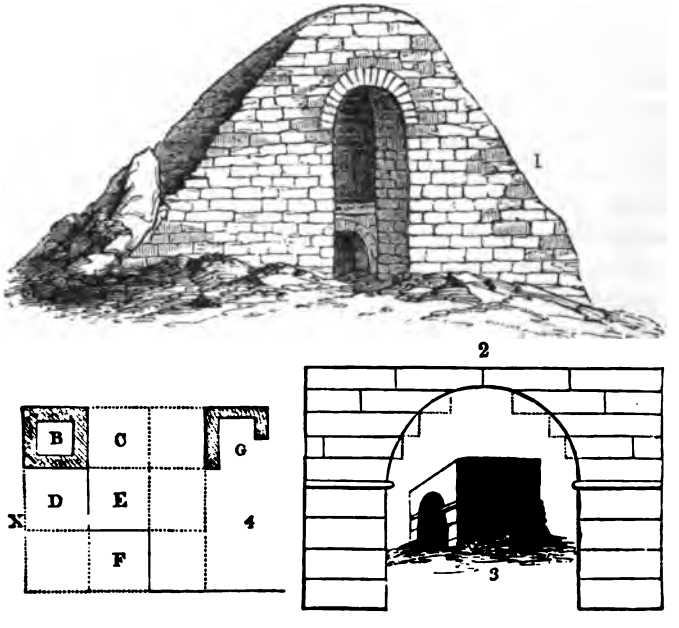
In some of the small temples of the Oasis the Romans attempted this innovation; but the appearance of the chambers so constructed fails to please, and the whimsical caprice of Osirei, or Seti I., who introduced an imitation of the arch in a temple at Abydus, was not followed by any of his successors. In this building the roof is formed of single blocks of stone reaching from one architrave to the other, which, instead of being placed in the usual manner, stand upon their edges, in order to allow



No. 427. *Fig.* 1. Vaulted rooms and doorway of a crude brick pyramid at Thebes.
2. An imitation of an arch at Thebes.
3. Another at Abydus.
4. Mode of commencing a quarry.

room for hollowing out an arch in their thickness; but it has an effect of inconsistency, without the plea of advantage or utility.

Another imitation of the arch occurs in a building at Thebes. Here, however, a reason may perhaps be given for its introduction, being in the style of a tomb, and not constructed as an Egyptian temple, nor bound to accord with the ordinary rules of architecture. The chambers, like those of the tomb of Saqqára, lie under a friable rock, and are cased with masonry, to prevent the fall of its crumbling stone; but, instead of being roofed on the principle of the arch, they are covered with a number of

large blocks placed horizontally, one projecting beyond that immediately below it, till the uppermost two meet in the centre, the interior angles being afterwards rounded off to form the appearance of a vault.

The date of this building is about 1500 B.C., consequently many years after the Egyptians had been acquainted with the art of vaulting; and the reason of their preferring such a mode of construction probably arose from their calculating the great difficulty of repairing an injured arch in this position, and the consequences attending the decay of a single block; nor can any one suppose, from the great superincumbent weight applied to the *haunches*, that this style of building is devoid of strength, and of the usual durability of an Egyptian fabric, or pronounce it ill suited to the purpose for which it was erected.

The most ancient buildings in Egypt were constructed of limestone, hewn from the mountains bordering the valley of the Nile to the east and west, extensive quarries of which may be seen at El Maasara,[1] Nesleh Shekh Hassan, El Maabdeh, and other places; and evidence of its being used long before sandstone is derived from the tombs near the Pyramids, as well as those monuments themselves, and from the vestiges of old substructions at Thebes.[2] Limestone continued to be occasionally employed for building even after the succession of the 16th Dynasty;[3] but so soon as the durability of sandstone was ascertained, the quarries of Silsilis[4] were opened, and those materials were universally adopted, and preferred for their even texture and the ease with which they were wrought. The extent of the quarries at Silsilis is very great; and, as I have elsewhere observed, 'it is not by the size and scale of the monuments of Upper Egypt alone that we are enabled to judge of the stupendous works executed by the ancient Egyptians: these would suffice to prove the character they bore, were the gigantic ruins of Thebes and other cities[5] no longer in existence. And safely may we apply the expression, used by Pliny in speaking of the porphyry quarries, to those of Silsilis, "they are of such extent, that masses of any dimensions might be hewn from them."'

[1] 'Egypt and Thebes,' pp. 322 and 348, the 'Troici lapidis mons' of Ptolemy and Strabo.

[2] Limestone blocks are sometimes found in the thickness of the walls of sandstone temples, of the time of Rameses II. and other kings, taken from older monuments.

[3] Herodotus says, Amasis even used the stone of the quarries near Memphis, probably of the Maasara hills, for part of the temple of Minerva at Sais (lib. ii. 175). ('Egypt and Thebes,' p. 442.)

[4] 'Egypt and Thebes,' p. 439.

[5] Herodotus (ii. 177) and Pliny (v. 9) reckon 20,000 cities in Egypt in the time of Amasis.

In opening a new quarry, when the stone could not be taken from the surface of the rock, and it was necessary to cut into the lower part of its perpendicular face, they pierced it with a horizontal shaft; beginning with a square trench, and then breaking away the stone left in the centre as indicated in wood-cut No. 427 by the space B, its height and breadth depending of course on the size of the stones required. They then cut the same around C, and so on to any extent in a horizontal direction; after which they extended the work downwards, in steps, taking away E and leaving D for the present, and thus descending as far as they found convenient, or the stone continued good. They then returned, and cut away the steps D, F, and all the others, reducing each time one step in depth, till at last there remained at X a perpendicular wall; and when the quarries were of very great horizontal extent, pillars were left at intervals to support the roof.

In one of the quarries at El Maasara, the mode of transporting the stone is represented. It is placed on a sledge, drawn by

No. 428. Removing a stone from the quarries at El Maasara.

oxen, and is supposed to be on its way to the inclined plane that led to the river; vestiges of which may still be seen a little to the south of the modern village.

Sometimes, and particularly when the blocks were large and ponderous, men were employed to drag them, and those condemned to hard labour in the quarries as a punishment appear to have been required to assist in moving a certain number of stones,[1] according to the extent of their offence, ere they were liberated; and this expression, 'I have dragged 110 stones for the building of Isis at Philæ,' in an inscription at the quarries of Gertassy in Nubia, seems to confirm my conjecture. In order to keep an account of their progress, they frequently cut the initials

[1] Mention of blocks of stone drawn from the quarries is made in some of the papyri, especially of the Aperui, a foreign race, who dragged them for the construction of some of the edifices in the Delta, during the reign of Rameses II. They have been supposed to be the Hebrews, but this has been disputed. (Chabas, 'Recherches sur la XIX^e^ Dynastie,' p. 153.)—S. B.

of their name, or some private mark, with the number, on the rock whence the stone was taken, as soon as it was removed: thus, C. XXXII., PD. XXXIII., PD. XXXIIII., and numerous other signs occur at the quarries of Fateereh.

The blocks were taken from the quarry on sledges; and in a grotto behind E'Dayr, a Christian village between Antinoë and El Bersheh, is the representation of a colossus,[1] which a number of men are employed in dragging with ropes; a subject doubly interesting, from being of the early age of Usertesen II., and one of the very few paintings which throw any light on the method employed by the Egyptians for moving weights: for it is singular that we find no illustration of the mechanical means of a people who have left so many unquestionable proofs of skill in these matters.

It is not to be supposed that the colossus was hewn in the hill of El Bersheh. This picture, like the trades, fowling scenes, and other subjects represented in similar grottoes, only refers to one of the occupations of the Egyptians;[2] nor does it even follow, that the inmate of the tomb had any office connected with the superintendence of the quarries whence it was brought.

One hundred and seventy-two men,[3] in four rows, of forty-three each, pull the ropes attached to the front of the sledge; and a liquid, probably grease, is poured from a vase, by a person standing on the pedestal of the statue, in order to facilitate its progress as it slides over the ground; which was probably covered with a bed of planks, though they are not indicated in the painting.

Some of the persons employed in this laborious duty appear to be Egyptians; the others are foreign slaves, who are clad in the costume of their country; and behind are four rows of men, who, though only twelve in number, may be intended to represent the set which relieved the others when fatigued.

Below are persons carrying vases of the liquid, or perhaps water, for the use of the workmen, and some implements connected with the transport of the statue, followed by taskmasters with their wands of office. On the knee of the figure stands a man who claps his hands to the measured cadence of a song, to mark the time and ensure their simultaneous draught; for it is

[1] This curious subject was first discovered by Captains Irby and Mangles. From the beard we see the statue is of a private individual.

[2] 'Egypt and Thebes,' p. 142.

[3] The number may be indefinite; and it is probable that more were really employed than are indicated in the painting.

evident that, in order that the whole power might be applied at the same instant, a sign of this kind was necessary; and the custom of singing at their work[1] was common to every occupation[2] among the Egyptians, as it now is in that country, in India, and many other places. Nor is it found a disadvantage among the modern sailors of Europe, when engaged in pulling a rope, or in any labour which requires a simultaneous effort.

The height of the statue appears to have been about twenty-four feet, including the pedestal, and it was of limestone,[3] as the colour and the hieroglyphics inform us. It was bound to the sledge by double ropes, which were tightened by means of long pegs inserted between them, and twisted round until completely braced; and to prevent injury from the friction of the ropes upon the stone, a compress of leather or other substance was introduced at the parts where they touched the statue.

It is singular that the position of the ring to which all the ropes were attached for moving the mass was confined to one place at the front of the statue, and did not extend to the back part of the sledge; but this was owing to the shortness of the body, and when of great length it is probable that ropes were fixed at intervals along the sides in order to give an opportunity of applying a greater moving power. For this purpose, in blocks of very great length, as the columns at Fateereh, which are about 60 ft. long and 8½ ft. in diameter, certain pieces of stone were left projecting from the sides, like the trunnions of a gun, to which several ropes were attached, each pulled by its own set of men.

Small blocks of stone were sent from the quarries by water to their different places of destination, either in boats or rafts; but those of very large dimensions were dragged by men overland in the manner here represented; and the immense weight of some shows that the Egyptians were well acquainted with mechanical powers, and the mode of applying a locomotive force with the most wonderful success.

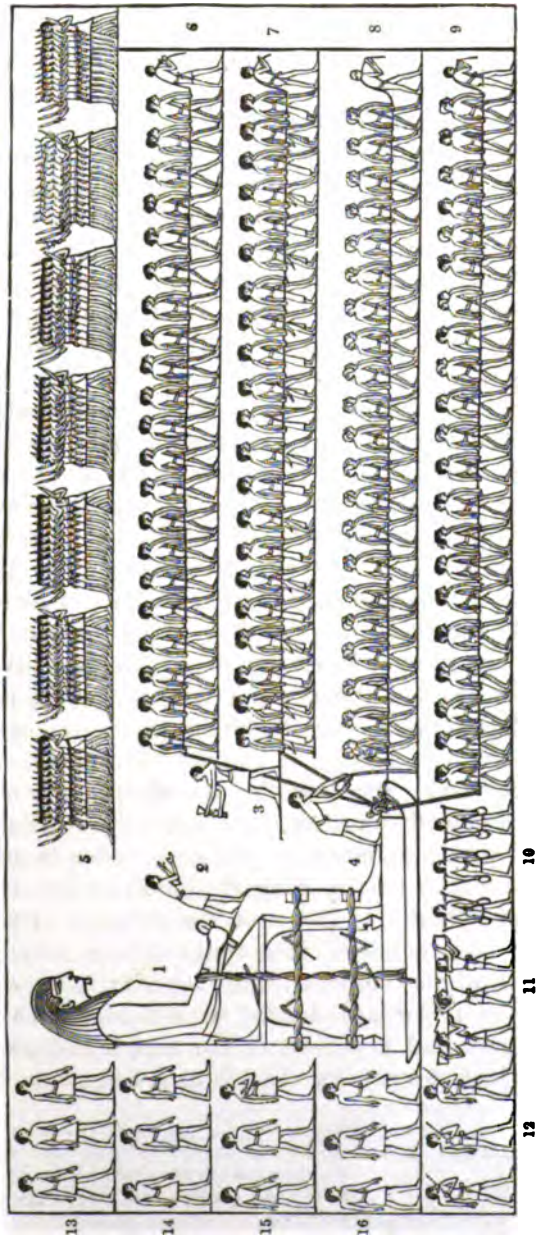
The obelisks transported from the quarries of Syene, at the First Cataracts, in latitude 24° 5′ 23″, to Thebes and Heliopolis, vary in size from seventy to ninety-three feet in length. They

[1] The custom of singing or shouting while treading grapes in the winepress, is mentioned by Jeremiah (xxv. 30): 'He shall give a shout as they that tread the grapes;' and Isaiah (xvi. 10): 'In the vineyard there shall be no singing;' being common to other people as well as to the Egyptians.

[2] Also during the dance: 1 Sam. xxi. 11.

[3] The word in the hieroglyphics signifies either limestone or sandstone.

are of one single stone; and the largest in Egypt, which is that of the great temple at Karnak, I calculate to weigh about



No. 429. **Mode of transporting a colossus from the quarries, from a lithographic drawing by Mr. Bankes.**
In a grotto at Dayr El'Shaks, near El Berkeh.

Fig. 1. The statue bound upon a sledge with ropes. It is of a private individual, not of a king, or a deity.
2. Man probably beating time with his hands, and giving out the verse of a song, to which the men responded; though 3 appears as if about to throw something which 2 is preparing to catch, or striking crotala.
4. Pouring a liquid, perhaps grease, from a vase.
5. Egyptian soldiers, carrying boughs. 6, 7, 8, 9. Men, probably captives and convicts, dragging the statue.
10. Men carrying water, or grease. 11. Some implements.
12. Taskmasters. 13, 14, 15, 16. Reliefs of men.

297 tons. This was brought about 138 miles from the quarry to where it now stands, and those taken to Heliopolis passed over a space of more than 800 miles. The power, however, to move the mass was the same, whatever might be the distance; and the mechanical skill which transported it five, or even one, would suffice for any number of miles.

In examining the ruins of Western Thebes, and reading the statements of ancient writers regarding the stupendous masses of granite conveyed by this people for several hundred miles, our surprise is greatly increased. We find in the plain of Qoorneh two colossi of Amenophis III., of a single block each,[1] forty-seven feet in height, which contain about 11,500 cubic feet, and are made of a stone not known within several days' journey of the place; and at the Memnonium is another of Rameses II., which, when entire, weighed upwards of 887 tons,[2] and was brought from E'Sooan to Thebes, a distance, as before stated, of 138 miles. This is certainly a surprising weight, and we cannot readily suggest the means adopted for its transport, or its passage of the river; but the monolithic temple said by Herodotus to have been taken from Elephantine to Buto, in the Delta, was still larger, and far surpassed in weight the pedestal of Peter the Great's statue at St. Petersburg, which is calculated at about 1200 tons. He also mentions a monolith at Saïs, of which he gives the following account:—'What I admire still more is a monument of a single block of stone, which Amasis transported from the city of Elephantine.[3] Two thousand men, of the class of boatmen, were employed to bring it, and were occupied three years in this arduous task. The exterior length is twenty-one cubits (31½ feet), the breadth fourteen (22 feet), and the height eight (12 feet); and within it measured eighteen cubits twenty digits (28 feet 3 inches) in length, twelve (18 feet) in breadth, and five (7½ feet) in height. It lies near the entrance of the temple, not having been admitted into the building, in consequence, as they say, of the engineer, while superintending the operation of dragging it forward, having sighed aloud, as if exhausted with fatigue, and impatient of the time it had occupied; which being looked upon by Amasis as a bad omen, he

[1] One of these is the vocal Memnon. ('Egypt and Thebes,' p. 33, *et seq.*) This was broken and repaired.

[2] 'Egypt and Thebes,' p. 11.

[3] The island opposite Syene, immediately below the First Cataract. The granite rocks stretch from the interior of the desert to the Nile in this part: the sandstone crosses the river more to the north, a little below Eileithyia. ('Egypt and Thebes,' pp. 420 and 452.)

forbade its being taken any further. Some, however, state that this was in consequence of a man having been crushed beneath it while moving it with levers.'[1]

Herodotus' measurement is given as it lay on the ground: his length is properly its height, and his height the depth from the front to the back; for, judging from the usual form of these monolithic monuments, it was doubtless like that of the same king at Tel-et-Mai, given in Burton's Excerpta,[2] the dimensions of which are 21 feet 9 inches high, 13 feet broad, and 11 feet 7 inches deep; and internally 19 feet 3 inches, 8 feet, and 8 feet 3 inches.

The weight of the Saïte monolith cannot certainly be compared to that of the colossus of Rameses; but when we calculate the solid contents of the temple of Latona at Buto, our astonishment is unbounded; and we are perplexed to account for the means employed to move a mass which, supposing the walls to have been only 6 feet thick—for Herodotus[3] merely gives the external measurement of forty cubits, or 60 feet in height, breadth, and thickness—must have weighed upwards of 5000 tons.[4]

The skill of the Egyptians was not confined to the mere moving of immense weights: their wonderful knowledge of mechanism is shown in the erection of obelisks, and in the position of large stones, raised to a considerable height, and adjusted with the utmost precision; sometimes, too, in situations where the space will not admit the introduction of the inclined plane. Some of the most remarkable are the lintels and roofing stones of the large temples; and the lofty doorway leading into the grand hall of assembly, at Karnak, is covered with sandstone blocks, 40 feet 10 inches long, and 5 feet 2 inches square.

In one of the quarries at E'Sooan, or Syene, is a granite obelisk, which, having been broken in the centre after it was finished, was left in the exact spot where it had been separated from the rock. The depth of the quarry is so small, and the entrance to it so narrow, that it was impossible for them to turn the stone, in order to remove it by that opening; it is, therefore, evident that they must have lifted it out of the hollow in which it had been cut, as was the case with all the other shafts previously hewn in the same quarry. Such instances as these suffice to prove the wonderful mechanical knowledge of the Egyptians; and we may question whether, with the ingenuity and science of

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[1] Herodot. ii. 175. [2] Plate xli. [3] Herodot. ii. 155.
[4] This is supposing it to be granite, as these monolithic temples were.

the present day, our engineers are capable of raising weights with the same facility as that ancient people.[1]

Pliny mentions several obelisks of very large dimensions, some of which were removed to Rome, where they now stand as tokens of the empty vanity of man.

The Egyptians naturally looked on those monuments with feelings of veneration, being connected with their religion, and the glorious memory of their monarchs; and at the same time perceived that, in buildings constructed as their temples were, the monotony of numerous horizontal lines required a relief of this kind: but the same feelings did not influence others, and few motives can be assigned for their removal to Europe, beyond the desire of possessing what required great difficulty to obtain, and flattered the pride of a vain people.[2]

I will not pretend to say that the ancient Romans committed the same strange outrage to taste as their modern successors, who have destroyed the effect of the most graceful part of these monuments by crowning the apex, which should of course terminate in a point, with stars, rays, or other whimsical additions; and, however habit may have reconciled the eye to such a monstrosity, everyone who understands the beauty of form and the harmony of lines must observe and regret the incongruity of balls and weathercocks on our own spires.

Pliny[3] says, that the first Egyptian king who erected an obelisk was Mesphres, who held his court at Heliopolis,[4] the city of the Sun, the deity to whom they were said to have been dedicated.[5] Many others were raised by different monarchs, and 'Rameses' made one 99 feet in height, 'on which he employed 20,000 workmen.' 'And, fearing lest the engineer should not take sufficient care to proportion the power of the machinery to

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[1] M. Lebas, well known in France as an eminent engineer, who removed the obelisk of Luxor now at Paris, has paid a just tribute to the skill of the Egyptians.

[2] They took some time to erect; that of the Lateran remained thirty-five years and upwards in its place in the hands of the workmen at Southern Thebes, according to the inscription. ('Records of the Past,' iv. p. 15.)—S. B.

[3] Plin. xxxvi. 8.

[4] Obelisks came into use for sepulchral purposes as early as the 4th and 5th Dynasties, and were small, and made of calcareous stone, and placed before the doors of sepulchres; larger ones have been found of the time of the 12th Dynasty. (Mariette, 'Monuments divers,' pl. 19a.) The oldest obelisk before a temple is that of Usertesen I., at Heliopolis. Large obelisks were made at the time of the 18th and 19th Dynasties, but declined afterwards, although later obelisks of basalt of smaller size have been found dedicated by monarchs of the 26th and later dynasties and Ptolemies, and their use continued under the Roman Empire. (Birch, 'Notes upon Obelisks,' Classical Museum, 1851, p. 201; Pierret, 'Dict. d'Archéol. Égypt.' p. 379.)—S. B.

[5] At Heliopolis; but in other places to other deities, as at Thebes to Amen, the god of that city.

the weight he had to raise, he ordered his own son to be bound to the apex, more effectually to guarantee the safety of the monument.'[1]

The same writer describes a method of transporting obelisks from the quarries down the river, by lashing two flat-bottomed boats together, side by side, which were admitted into a trench cut from the Nile to the place where the stone lay, laden with a quantity of ballast exactly equal to the weight of the obelisk; which, so soon as they had been introduced beneath the transverse block, was all taken out; and the boats rising as they were lightened, bore away the obelisk in lieu of their previous burden. But we are uncertain if this method was adopted by the Egyptians; and though he mentions it as the invention of one Phœnix, he fails to inform us at what period he lived.

No insight, as I have already observed, is given into the secrets of their mechanical knowledge from the sculptures, or paintings of the tombs, though so many subjects are there introduced. Our information connected with this point is confined to the use of levers, and a sort of crane; which last is mentioned by Herodotus in describing the mode of raising the stones from one tier to another when they built the Pyramids. He said it was made of short pieces of wood,[2]—an indefinite expression, conveying no notion either of its form or principle,—and every stone was raised to the succeeding tier by a different machine.

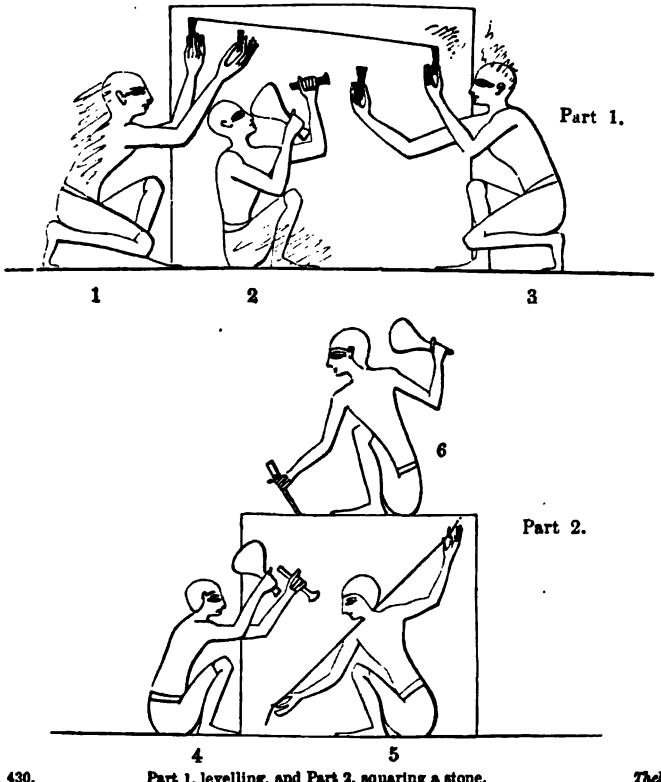
Diodorus tells us,[3] that machines were not invented at that early period, and that the stone was raised by mounds or inclined planes; but we may be excused for doubting his assertion, and thus be relieved from the effort of imagining an inclined plane five hundred feet in perpendicular height, with a proportionate base.

It is true that the occupations of the mason and the statuary are sometimes alluded to in the paintings; the former, however, are almost confined to the levelling or squaring of a stone, and the use of the chisel. Some are represented polishing and painting statues of men, sphinxes, and small figures; and two instances occur of large granite colossi, surrounded with scaffolding,[4] on which men are engaged in chiselling and polishing the stone; the painter following the sculptor to colour the hieroglyphics he has engraved at the back of the statue.

The usual mode of cutting large blocks from the quarries was

[1] Plin. xxxvi. 9. [2] Herod. ii. 125. [3] Diodor. i. 63. [4] Woodcut No. 431.

by a number of metal wedges, which were struck at the same instant along its whole length; sometimes, however, they seem to have been of highly dried wood, which being driven into holes previously cut for them by a chisel, and then saturated with water, split the stone by their expansion; and the troughs frequently found along the whole line of the holes where the wedges were inserted argue strongly in favour of this opinion.

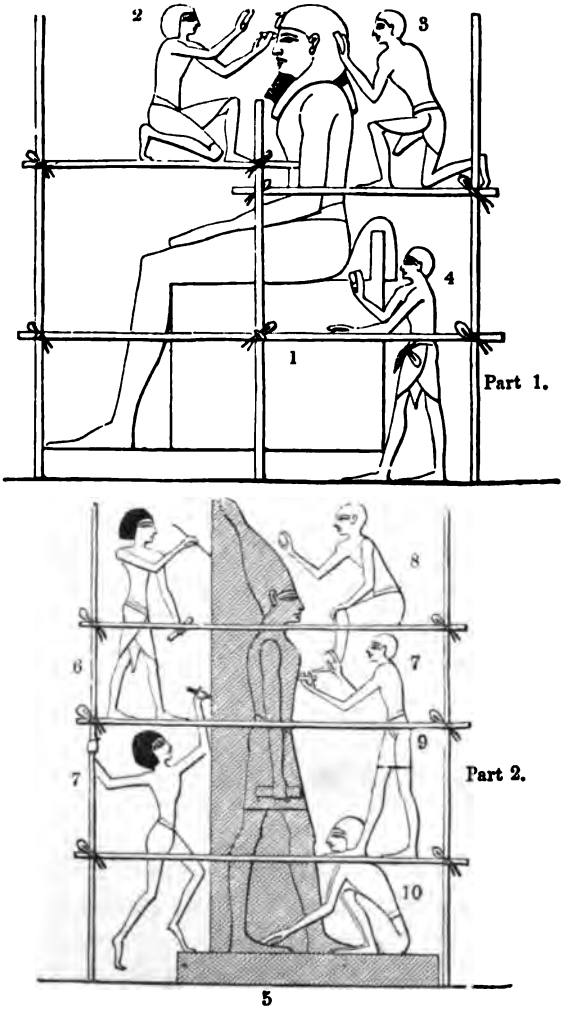


No. 430. Part 1, levelling, and Part 2, squaring a stone. *Thebes.*
Figs. 2, 4, and 6 are using the chisel and mallet.

Such a method could only be adopted when the wedges were in an horizontal position, upon the upper surface of the stone; but those put into the sides were impelled by the hammer only.

To separate the lower part of a ponderous mass from the rock, we may suppose they cut under it, leaving long pieces here and there to support it, like beams, which traversed its whole depth from the front to the back; and then having introduced wooden rafters into the open spaces which were cleared away, they re-

moved the remainder of the stone, and the block rested on the wood.

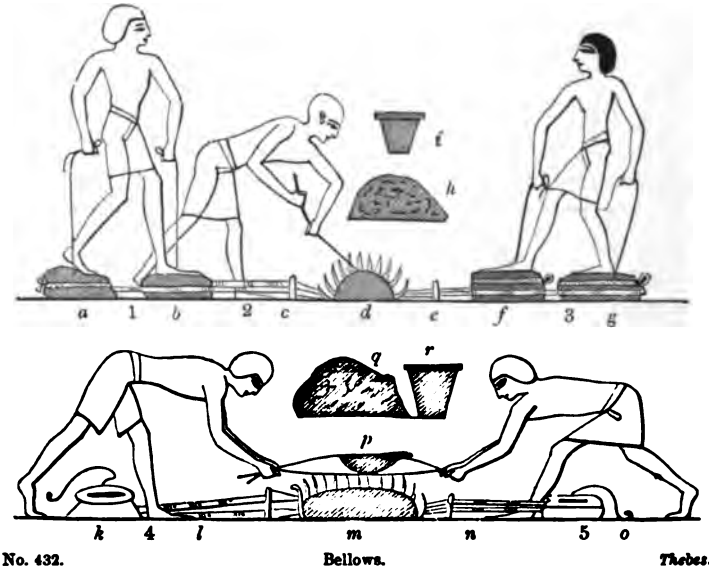


No. 431. Part 1. Large sitting colossus of granite, which they are polishing. *Thebes.*
Part 2. Standing figure of a king, and, like the former, painted to represent granite.
Figs. 8, 9, and 10 are polishing it; and *figs.* 6 and 7, painting and sculpturing the hieroglyphics at the back.

Some have imagined that they used the same means as now practised in India, of lighting a fire along the whole length of the mass, in the direction where they intended it should split; and then pouring water upon it, cracked the stone in that part by its sudden action: but this is very doubtful, and the presence of the

holes for the wedges sufficiently proves the method they usually employed.

Among the remarkable inventions of a remote era among the Egyptians may be mentioned bellows[1] and siphons. The former were used at least as early as the reign of Thothmes III., the contemporary of Moses, being represented in a tomb bearing the name of that Pharaoh. They consisted of a leather bag, secured and fitted into a frame, from which a long pipe extended, for carrying the wind to the fire. They were worked by the feet, the operator standing upon them with one under each foot, and



No. 432. Bellows. *Thebes.*

a, *b*, *f*, *g*, the leather case. *c*, *e*, *l*, *n*, the pipes conveying the wind to the fire. *d*, *m*, the fire. *h*, *q*, charcoal. *k* and *o* are raised as if full of air.

pressing them alternately, while he pulled up each exhausted skin with a string he held in his hand. In one instance we observe from the painting, that when the man left the bellows, they were raised as if full of air;[2] and this would imply a knowledge of the valve.

It is uncertain when bellows were first invented: the earliest contrivance of this kind was probably a mere reed or pipe, which we find used by goldsmiths in the age of Usertesen,[3] and also at

[1] [Isaiah (liv. 16) says, 'The smith that bloweth the coals (charcoal) in the fire.' —G. W.]

[2] Woodcut No. 432, *k*, *o*.

[3] It does not follow, from the use of the pipe at Beni-Hassan, that bellows were unknown at that period, because it continued to be used long after the time of Thothmes. Woodcut No. 413.

a late period, after the invention of bellows; and the tubes of these last appear even in the time of Thothmes III. to have been simply of reed, tipped with a metal point, to resist the action of the fire.

In process of time the sack containing the air was added, and various improvements succeeded each other in the form and principle of the bellows; there are, however, no means of ascertaining the period when they assumed their present form, and the merit of the late invention of *wooden* bellows is still disputed. Strabo ascribes the bellows[1] to Anacharsis, but with the evident conviction that these, the double anchor, and the potter's wheel,[2] were of an age far anterior to the Scythian philosopher; which is fully proved by the paintings at Thebes.

The ordinary hand-bellows, now used for small fires in Egypt, are a sort of bag made of the skin of a kid, with an opening at one end (like the mouth of a common carpet bag), where the skin is sewed upon two pieces of wood; and these being pulled apart by the hands, and closed again, the bag is pressed down, and the air thus forced through the pipe at the other end. It is, perhaps, an ancient invention, but I find no indication of it in the paintings. The bellows with sides of wood, made at the present day, are a more perfect construction than these last, or the foot bellows of the time of Thothmes. They are supposed to have been known to the Greeks, though, I confess, the expression of Virgil[3] is rather calculated to convey the idea of bellows made of ox leather,[4] without wooden sides. The syringe was an early invention in Egypt, and used by the embalmers for injecting liquids into the head and other cavities of the body, as well as for other purposes.

Siphons are shown to have been invented in Egypt at least as early as the reign of Amenophis II., 1450 years before our era; and they again occur in the paintings of the third Rameses. In a tomb at Thebes bearing the name of Amenophis, their use is unequivocally pointed out, by one man pouring a liquid into some vases, and the other drawing it off, by applying the siphon to his mouth and thence to a large vase; and it is not improbable that they owed their invention to the necessity of allowing the

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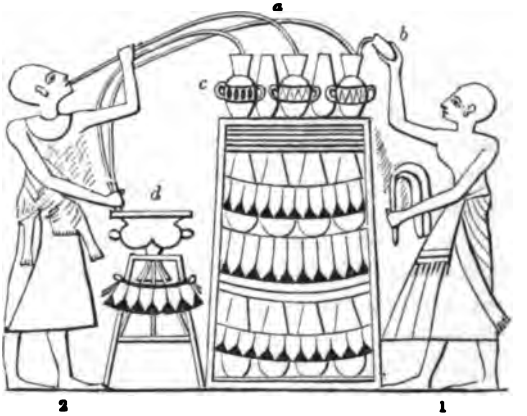
[1] Strabo, vii. p. 209.
[2] Seneca, Ep. 90. Plin. vii. 56.
[3] Virg. Georg. iv. 171. Herodot. i. 68. Sculptures at Philæ, &c.
[4] Beckmann says 'that bulls' leather,' which Virgil mentions, 'is unfit for bellows, and that ox or cow leather can only be used for that purpose.'

Nile water to deposit its thick sediment in vases, which could not be moved without again rendering it turbid, whether by inclining the vessel, or dipping a cup into it with the hand.

Julius Pollux says they were used for tasting wine;[1] and Heron of Alexandria, the first writer of consequence who mentions them, and who lived under Ptolemy Euergetes II., shows them to have been employed as hydraulic machines, on a grand scale, for draining lands, or conveying water over a hill from one valley to



No. 433. Siphons used in the year 1456 B.C. *Thebes.*

Fig. 1 pours a liquid into vases from the cup, *b*; and *fig.* 2 draws it off by the siphons, *a*.

another. Their name, siphon, is evidently Oriental, and derived from the word *siph* or *sif*, 'to imbibe' or 'draw up with the breath,' analogous to, and the origin of, our own expression 'to sip.'

Of the numerous inventions to which the Egyptians may lay claim, we learn little from the works of ancient authors; but their skill in various branches of art are highly extolled by those[2] who visited, or were acquainted with, the country.

Herodotus[3] ascribes the origin of geometry to the necessity of ascertaining every successive year the quantity of land, increased or diminished by accidents arising from the inundation of the Nile; which is, indeed, not inconsistent with reason; but the historian is wrong in limiting the date of land-surveying to the age of Sesostris, since it was evidently known long before his

[1] Jul. Poll. Onom. vi. 2, and x. 20.

[2] Diodorus (i. 74) says that the arts were carried to a higher degree of perfection and excellence among the Egyptians than any other people; which he ascribes to the artisans being confined to their own occupations. The Chinese have shown that, like many other ideas, this is plausible in theory, but bad in practice.

[3] Herodot. ii. 102.

time; and so ancient did the Egyptians[1] consider it, that they ascribed its invention to Thoth.[2]

That the Greeks should have been indebted to Egypt for their early lessons in science is not surprising, since it is known that, in those days, Egypt took the lead in all philosophical pursuits. Thales, the first Greek who arrived at any proficiency in geometry, went to study there; and his example was afterwards followed by others, who sought the best school of science and philosophy. Pliny's story of Thales teaching his instructors to measure the height of a pyramid by its shadow is sufficiently improbable; but that it should be repeated and believed at the present day is surprising, and some appear to think the Egyptians were incapable of making canals until taught by the Greeks. Equally inconsistent is the story of Pythagoras' theory of musical sound; not only because he had visited countries where music had long been a profound study, but because the anvil (like a bell) gives the *same* sound when struck by different hammers, at least when struck on the same part.

If Plato ascribes the invention of geometry to Thoth; if Iamblichus says it was known in Egypt during the reign of the gods; and if Manetho attributes a knowledge of science and literature to the earliest kings,—these facts merely argue that such pursuits were reputed to be of very remote date there. The monuments, however, prove the truth of the reports of ancient authors respecting the early knowledge of geometry, astronomy, and other sciences among the Egyptians. Mensuration and surveying were the first steps that led to geography; and the Egyptians were not satisfied with the bare enumeration of conquered provinces and towns; for, if we may believe Eustathius, 'they recorded their march in *maps*, which were not only given to their own people, but to the Scythians also, to their great astonishment.'

The practical results of their knowledge had sufficiently proved the great advancement made by them, ages before the Greeks were in a condition to study or search after science. It was in Egypt that the Israelites obtained that knowledge which enabled them to measure and 'divide the land;' and it was the known progress made by the Egyptians in the various branches of philosophical research that induced the Greeks to study in

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[1] A geometric and arithmetic papyrus, now in the British Museum, has a portion devoted to the triangulation and mensuration of fields. It professes to be a copy of a much earlier document. ('Zeitschr. f. ägypt. Spr.' 1868, p. 108.)—S. B.

[2] Plato in Phædo.

Egypt. Those, too, who followed Thales only varied the theories he had propounded; and the subsequent visits of others, as Pythagoras, Eudoxus, and Plato, introduced fresh views, and advanced the study of philosophy and positive science on the same grounds, but with greater knowledge, as they went deeper into the views of their teachers. It was doubtless from Egypt that 'Thales and his followers' derived the fact of 'the moon receiving its light from the sun.'[1]

No one will for a moment imagine that the wisest of the Greeks went to study in Egypt for any other reason than because it was there that the greatest discoveries were to be learnt; or that Pythagoras, or his followers,[2] suggested, from no previous experience, the theory (we now call Copernican) of the sun being the centre of our system;[3] or the obliquity of the ecliptic, or the moon's borrowed light, or the proof of the milky way being a collection of stars,[4] derived from the fact that the earth would otherwise intercept the light if derived from the sun, taught by Democritus and by Anaxagoras, according to Aristotle,[5] the former of whom studied astronomy for five years in Egypt,[6] and mentions himself as a disciple of the priests of Egypt, and of the Magi, having also been in Persia and at Babylon.[7]

Iamblichus says Pythagoras derived his information upon dif-

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[1] Plut. de Placit. Philos. ii. 28; Cic. de Nat. Deor. i.; and Diog. Laert. 8; which Anacreon has introduced into a drinking ode (19). The same was the belief of Aristarchus at a later time (Vitruv. ix. 4); and Macrobius (on Cicero's Somn. Scip. i. p. 44) says, 'lunam, quæ luce propriâ caret, et de sole mutuatur.'

[2] Plut. de Placit. Philos. iii. 11.

[3] Aristot. de Cœlo, ii. 13.

[4] Plut. de Placit. Philos. iii. 1.

[5] Arist. Met. i. 8.

[6] Diodor. i. 98.

[7] Clem. Str. i. p. 304. The same may be said of the principle by which the heavenly bodies were attracted to a centre, and impelled in their order (Arist. de Cœl. ii. 13), the theory of eclipses and the proofs of the earth being round (ibid. ii. 14). These and many other notions were doubtless borrowed from Egypt, to which the Greeks chiefly resorted, or from the current opinions of the 'Egyptians and Babylonians,' the astronomers of those days; from whose early discoveries so much had been derived concerning the heavenly bodies (Arist. de Cœl. ii. 12). Cicero, on the authority of Theophrastus, speaks of Hicetas of Syracuse, a Pythagorean, having the same idea respecting the earth revolving in a circle round its own axis (Acad. Quæst. ii. 39), which Diogenes Laertius says another Pythagorean, Philolaus, had propounded before him (Life of Philolaus); and Aristotle (de Cœlo, ii. 13) observes, that though the greater part of philosophers say the earth is the centre of the system, the Pythagoreans who live in Italy maintain that fire is the centre, and the earth being one of the planets rotates about the centre and makes day and night. And if Plato mentions the same, as Cicero says, 'rather more obscurely' (Tim. 80, p. 530), it is probably owing to his having heard of it while in Egypt, without giving the same attention to the subject as his predecessor Pythagoras. This heliocentric system was finally revived in Europe by Copernicus, after having been for ages lost to the world; though Nicolas of Cus, long before his time, and perhaps some others, were acquainted with it; and when Peru was conquered by the Spaniards, it was found that the sun had there long been considered the centre of our system.

ferent sciences from Egypt; he learnt philosophy from the priests; and his theories of comets, numbers, and music were doubtless from the same source: but the great repugnance evinced by the Egyptian priests to receive Pythagoras will account for their withholding from him much that they knew, though his great patience, and his readiness to comply with their regulations even to the rite of circumcision,[1] obtained for him more information than was imparted to any other Greek.[2] Clemens says,[3] 'Pythagoras was the disciple of Sonchês the Egyptian arch-prophet (Plutarch says of Onuphis, and Solon of Sonchis the Saïte); Plato of Sechnuphis of Heliopolis; and Eudoxus the Cnidian of Conuphis;' and he repeats the story of Plato,[4] of the Egyptian priest saying, 'Solon, Solon, you Greeks are always children:' which shows what the general belief was among the Egyptians and Greeks, respecting the source of knowledge in early times. Strabo indeed affirms that 'the Greeks did not even know the (length of the) year till Eudoxus and Plato went to Egypt,'[5] at the late period of 370 B.C.[6] The development given in after-times by the Greek mind to what they learnt originally from Egypt, is what showed their genius, and conferred an obligation on mankind; and it is by keeping this in view, and by perceiving how the Greeks applied what they learnt, that we shall do them justice, not by erroneously attributing to them the discovery of what was already old when they were in their infancy.

Herodotus, on this as on other occasions, is far above the prejudices of his countrymen; he claims no inventions borrowed from other people; and his reputation has not suffered from the injudicious accusation of Plutarch, 'of malevolence towards the Greeks.'

'The γνώμων and the πόλος,' says Herodotus, 'were received by the Greeks from the Babylonians;' but they attributed the invention of the gnomon to Anaximander, and that of various dials to Eudoxus and others; some again ascribing them to Berosus.[7]

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[1] Clem. Strom. i. p. 302.
[2] Plut. de Isid. s. 10.
[3] Strom. i. p. 303.
[4] Tim. p. 466, tr. T.
[5] Strabo, xvii. p. 554.
[6] See also Diodor. i. 28 and 81, and what is cited by Eusebius, Præp. Evang. x. p. 480, respecting the visits of several Greeks; also Clem. Strom. i. 300, and Diog. Laert. 'Life of Thales,' 15; and Cicero, Somn. Scip., who says, 'Plato Ægyptios omnium philosophiæ disciplinarum parentes secutus est.'
[7] Vitruv. ix. 9. That the dial was of very early date is evident, since in the days of Hezekiah, between three and four hundred years before Eudoxus, and about one hundred years before Anaximander, it was known to the Jews, as is shown in Isaiah xxviii. 8 and 2 Kings xx. 16, where the shadow is said to have been brought 'ten degrees (*mâlûth*) backward, by which it had gone down on the dial (*mâlûth*) of Ahaz.' The Hebrew word 'step,' 'degree,'

At all events the *use* of the dial was known in Judæa as early as seven centuries before our era, and it is not mentioned as a novelty. All that Anaximander could have done was to introduce it into Greece, and *adoption* should frequently be substituted for *invention* in the claims set up by the Greeks. Indeed they often claimed inventions centuries after they had been known to other people; and we are not surprised at the statement of Plato, that 'when Solon inquired of the priests of Egypt about ancient matters, he perceived that neither he nor any one of the Greeks (as he himself declared) had any knowledge of very remote antiquity.'[1] And when Thales is shown by Laertius to have been the first who was acquainted with geometry, some notion may be had of the very modern date of science in Greece, since he was a contemporary of Crœsus,[2] and lived at a time when Egypt had already declined from its greatness, and more than seven centuries after astronomical calculations had been recorded on the monuments of Thebes.[3]

Vitruvius attributes the invention of the semicircular (concave) dial, or *hemicyclium*, to Berosus, the Chaldæan historian, who was born in the reign of Alexander, which is reducing the date of it to a very recent period.[4]

'Eudoxus,' according to Vitruvius, 'invented the *arachné* (spider's web), or, as some say, Apollonius: and Aristarchus of Samos the *scaphé* or hemisphere, as well as the disk on a plane;' which (if he means a dial on a plane surface) was a still further improvement, and required greater knowledge for its construction. The most perfect hydraulic clock was invented by Ctesibius, at Alexandria, in the time of Ptolemy Euergetes II.; but the more simple clepsydra was known long before, being mentioned by

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מַעֲלָה, *mālh* or *māleh*, is the same as the Arabic *ddraga*, 'step' or 'degree,' and the Latin *gradus*; and is taken from *ālh*, 'to go up.' Mr. Bosanquet has explained the manner in which the sun during an annular eclipse caused the shadow to go back in what he supposes to have been really a flight of steps, and fixes the date of it in January, B.C. 689.

[1] Plat. in Tim. p. 467.

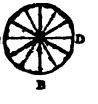
[2] Herod. i. 75.

[3] Clemens (Strom. i. p. 300) says Thales is thought by some to be a Phœnician, and quotes Leander and Herodotus; but the latter only says his ancestors were Phœnicians (i. 170).

[4] This was a simple kind of *πόλος* (for, as before observed, the *πόλος* is the dial, and *γνώμων* merely a perpendicular rod which showed the time by the length of its shadow), and it was very generally used till a late period, judging from the many that have been found of Roman times. It consisted of a basin, *λεκανίς*, with a horizontal *γνώμων* in the centre of one end, and eleven converging lines in the concave part divided it into the twelve hours of the day; the older dials having been marked by degrees, probably like that of Ahaz. The Greeks marked the divisions by the first twelve letters of the alphabet, and four of these reading ΖΗΘΙ, 'Enjoy yourself,' are alluded to in an epigram ascribed to Lucian (Epigr. 17).

Aristophanes and described by Aristotle,[1] and not being then a novelty.[2] Herodotus says the Greeks received the twelve hours from the Babylonians, and the Jews are supposed not to have adopted them till after the Captivity. The first mention of an hour is in the Book of Daniel;[3] for though even there the sense might require it to mean only 'moment,' the use of the word 'time,' immediately before, shows that *sah* was a division of time, which is still employed by the Arabs in the same sense of 'hour' and 'moment.'

The Jews at first divided the day into four parts, and their night into three watches, and the mention of the dial of Ahaz proves that they had also recourse to a more minute division of time, but no hours are specified; and afterwards, when they adopted them, the numbering of their hours was irregular, as with the Arabs, being reckoned from sunrise to sunset. The Greek word ὥρα was used long before hours were introduced into Greece. Homer divides the day into three parts;[4] and at Rome it consisted of two, sunrise and sunset, *meridies* or noon separating the two; and the twelve equal parts were adopted B.C. 291. The natural division of the circle by its radius of 60° into six parts, and into six more by the half of those parts, or by the same radius starting from the second diameter, C D, which crosses the first, A B, at right angles, may have been the origin of this conventional division into twelve parts; as that into three parts may have been the division of the circle by the length of its diameter, or 120°.



No. 434.

The Egyptians had twelve hours of day and twelve of night at a very early period; but there is nothing to show whether this division was first used in Egypt or Chaldæa. The Greeks, however, who frequented Egypt from the time of Thales, ought to have been acquainted with the twelve hours there: and their intercourse being far greater, both for study and for trade, with Egypt than with Babylon, we might suppose them more likely to receive them from the former than from that inland city; but an intercourse through Asia Minor may have brought them to Greece from the Babylonians.

It has been a question whether the Egyptians had a week of

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[1] Probl. sect. 16, p. 933.
[2] Athen. Deipn. iv. p. 174, and xi. p. 497; Vitruv. ix. 9; Plin. vii. 37, and ii. 16, on the Horologium.
[3] Dan. iv. 19; iii. 6.
[4] Il. xxi. 111.

seven days. Dion Cassius evidently shows that this was the case,[1] and his statement agrees with what Herodotus says of days being consecrated to certain deities, though the fact of the Egyptians having reckoned by ten days may argue against it. It must, however, be observed that the division of the month into decades must date after the adoption of a solar year, and that weeks were the approximate result of the lunar division of time, which is the older of the two. Weeks were certainly used at a very early period; as we find from Genesis and the account of the Creation; and the importance of the number seven is sufficiently obvious from its frequent occurrence throughout the Bible.[2]

That the seven-day division was known to the Egyptians seems to be proved by the seven-days' *fête* of *Apis* (a fourth part of the number twenty-eight assigned to the years of *Osiris*' life) as well as by their seventy days' mourning for the dead, or ten weeks of seven days;[3] and the seven days that the head took annually to float to Byblus from Egypt,[4] the fourteen pieces into which the body of Osiris was divided, and his twenty-eight years, evidently point to the length of a week (4×7). The time of mortification imposed on the priests lasted from seven to forty-two days (one to six weeks):[5] which shows the entire number to have been based on seven; and the same occurs again in the forty-two books of Hermes, as well as in the forty-two assessors of Amenti. Indeed the frequent occurrence of seven shows that it was as favourite a number with the Egyptians as with the Jews; and the Pythagoreans borrowed their preference for the hebdomadal division from Egypt. There is no reason to conclude the Egyptians had not weeks of seven days because they divided their solar month into the very natural division of three parts of ten each; it would rather argue that the original lunar month was divided into seven-day weeks, and that the decade division was a later introduction, when the months were made to consist of thirty days. And as the monuments are all of a time long after the thirty days were adopted, the more frequent mention of a

[1] Hist. Rom. xxxvii. 19.

[2] It was common to all the Semitic nations and to those of India; but in China it was only used by the Buddhists, who introduced it there; and the Chinese as well as all the Mongolian races always had five-day divisions, and cycles of sixty years instead of centuries. The Aztecs had also weeks of five days, four of which made a month, and the year contained eighteen months of twenty days, with five days added at the end, which were unlucky, as one of them was in Egypt. They had also their astronomical computation by months of thirteen days, 1461 of which made their cycle of fifty-two years, the same number as that of the vague years composing the Egyptian Sothic period.

[3] Gen. l. 3.

[4] Lucian, de Dea Syr.

[5] Porphyr. de Abstin. iv. 7.

decade instead of the hebdomadal division is readily accounted for. Moreover these months of thirty days still continued to be called 'moons,' as at the present day. Dion Cassius also distinctly states that the seven days were first referred to the seven planets by the Egyptians.[1]

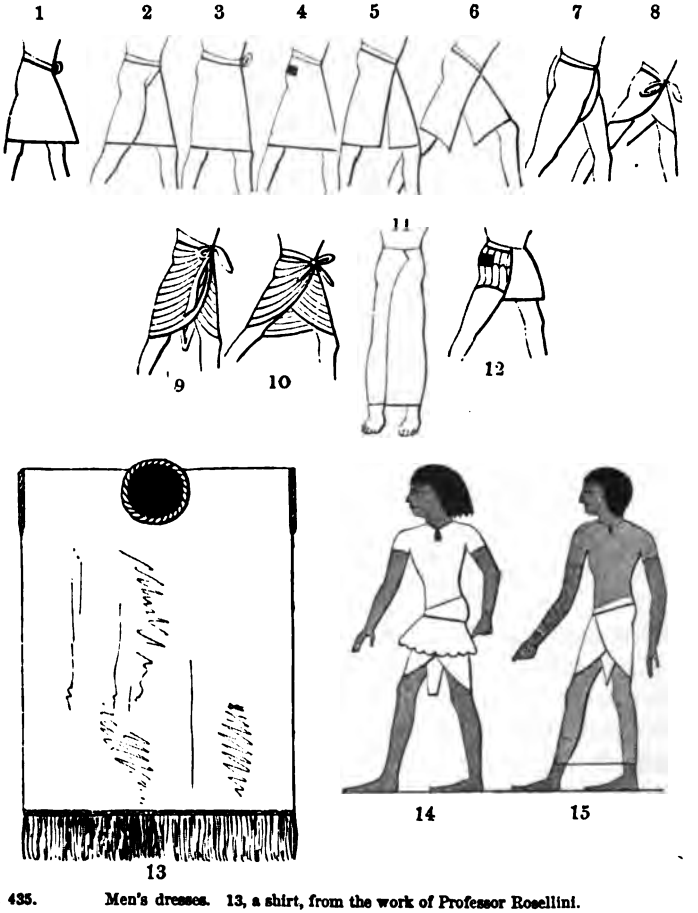
Sufficient data cannot, of course, be expected from the sculptures of the tombs, and the accidental introduction of their occupations, to enable us to form an accurate opinion respecting the extent of their knowledge, the variety of their inventions, or the skill of their workmen in different branches of art. The objects buried with the dead were frequently mere models of those they used; and the pains taken in making them depended on the sums expended by the friends of the deceased after his death. It was left to their good intentions, or their superstitious feelings, to decide of what quality they should be, or what labour should be bestowed upon them; and if the kind regards of a friend frequently induced some to incur considerable expense in providing such objects, many, on the other hand, were less scrupulous in the last duties to their departed relative. The former purchased ornaments of the most costly materials, as agate,[2] basalt, granite, alabaster, onyx, jasper, gold, and precious stones; the latter were contented with common porcelain, wax, limestone, or wood. But even the best which have been found in the tombs are evidently of inferior quality; and, like their vases and chairs, none have been discovered equal in beauty to those represented in the paintings, with the exception of a few rings and some female ornaments, which had been actually worn by the deceased.

The paintings, again, indicate a very small portion of their inventions; many, with which we know they were acquainted, are omitted; and the same remark applies to some of their most common occupations, to the animals they kept, and to the ordinary productions of their country. No exact notion can even be formed of their costume and the dresses of various grades, either

[1] The Greeks, like the Egyptians, divided their month into three parts, and their year into three decades of months, corresponding to the three seasons of the Egyptians: and the Roman month consisted of calends, nones, and ides, the periods before each being of different lengths; but they afterwards adopted the division of weeks, giving the names of the sun, moon, and five planets to the seven days we now use. The Egyptians had both decimal and duodecimal calculation, as the twelve hours of day and night, the twelve kings, twelve gods, twelve months ($12 \times 30 = 360$ days), and 360 cups at Osiris' tomb in Philæ; $12 \times 6 = 72$ conspirators against Osiris; and $12 \times 6 = 72$, which some fix as the number of days of the embalmed; and instances of both methods of notation are found on the oldest monuments of the 4th Dynasty.—G. W.

[2] So called from Achate, a river in Sicily. (Theophr. § 58.)

among men or women, though so frequently represented; partly owing to their conventional style of drawing figures, partly to their want of skill in depicting drapery; which, as I have observed, was merely added to the figure, without forming part



No. 435. Men's dresses. 13, a shirt, from the work of Professor Rosellini.

of the subject described; it is, therefore, only the most simple portion of their dress which can be understood.

Ordinary workmen, and indeed all the lower orders, were clad in a sort of apron, or kilt, sometimes simply bound round the loins, and lapping over in front;[1] and others had short drawers, extending half-way to the knee.[2] The same kind of

[1] Woodcut No. 435. This was called the *s'enti* or *sindon*, and was worn by all classes.

[2] Woodcut No. 435, *figs.* 14 and 15.

apron was worn by the higher orders, under an ample dress of fine linen, reaching to the ankles,[1] and provided with large sleeves.[2] The apron was generally fastened by a girdle, or by a sort of sash, tied in front in a bow or knot:[3] it was sometimes folded over, with a centre-piece falling down in front, beneath the part where it overlapped; and some of the poorer classes, while engaged in laborious occupations, were contented with a roll of linen passed between the legs, from the back to the front of the girdle;[4] which is frequently used at this day by the peasants when drawing water by the *shadoof*.

Herodotus mentions[5] some Egyptian dresses, which he describes of linen, with a fringe on the border around the legs, called *calasiris;* over which they wore a cloak of white wool, similar, no doubt, to the *bornous*[6] of the present day, so common in Egypt and the coast of Barbary. I never remember seeing this cloak represented, except in the dresses worn by the captives of the Rut-en-nu, who appear to have something of the kind over their inner garments.

The same custom of edging their dresses with fringes was common to the Israelites, who were ordered[7] to make them 'in the borders of their garments;' 'a blue riband' being 'put upon the fringe.' These fringes, as already observed, were only the ends of the threads composing the woof, left in order to prevent the cloth unravelling; and the blue riband added by the Israelites was intended to strengthen it, and prevent its tearing.[8]

I have noticed the woollen cloak, and the prohibition which Herodotus says was issued against their wearing it when they entered a temple, or being buried in cloths of that quality; and I have also observed that, though cotton garments were sometimes used, the preference was given to linen, which was considered more conducive to cleanliness and health. With regard to the *calasiris* mentioned by Herodotus, it does not appear that they were very generally used; but dresses are occasionally represented in the paintings with a fringe,[9] and pieces of cloth have been found in the tombs with this kind of border. Some

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[1] Woodcut No. 436, *figs.* 5, 6, and Pl. XII., *fig.* 14 [called *basui*].

[2] Woodcuts No. 370 and No. 136, *fig.* 5.

[3] Woodcut No. 97 [the sash or girdle was called *rut*, the tie, *ta*.—S. B.].

[4] Woodcut No. 435, *fig.* 7.

[5] Herodot. ii. 81.

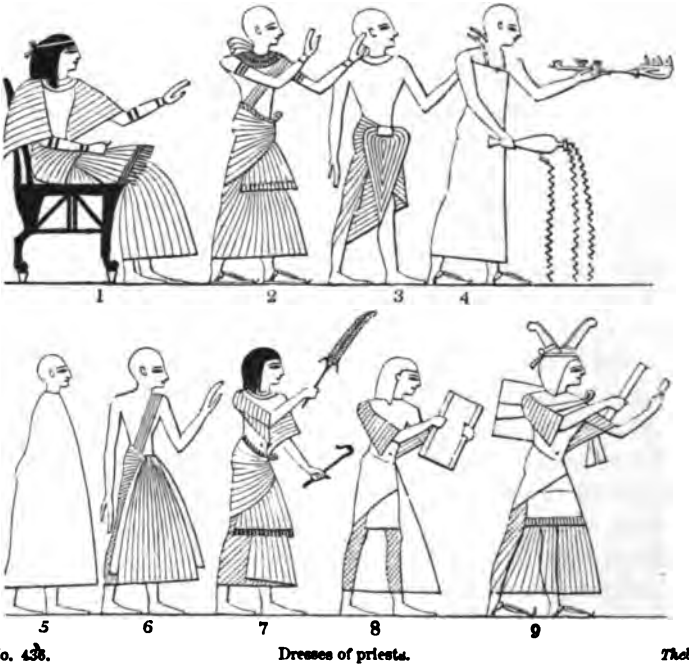
[6] The *bornous* is a woollen cloak, open in front, and buttoned over the breast. It has a hood.

[7] Numb. xv. 38.

[8] Many fragments of rolls of linen, with these blue selvages, are in the different collections.—S. B.

[9] Woodcuts No. 436, *figs.* 1, 7, 9; and No. 438, *fig.* 1.

wore a sort of shirt with loose or tight sleeves, open at the neck, where it was tied with strings;[1] and except that it was of linen, instead of wool, it was not unlike the *bisht* of the modern inhabitants of Upper Egypt. The dresses of the priests and persons of rank consisted of an under-garment, similar to the apron already mentioned, and a loose upper robe with full sleeves, secured by a girdle round the loins; or of the apron, and a shirt with short tight sleeves, over which was thrown a loose robe, leaving the



No. 438. Dresses of priests. *Thebes.*
8, 9, hierogrammateis, or sacred scribes.

right arm exposed.[2] Sometimes a priest, when officiating in the temple, laid aside the upper vesture, and was satisfied to wear an ample robe bound round the waist, which descended over the apron to his ankles; and occasionally he put on a long full garment, reaching from below the arms to the feet, and supported over the neck with straps.[3] Others again, in the sacred processions, were entirely covered with a dress of this kind, reaching to the throat, and concealing even the hands and arms.[4]

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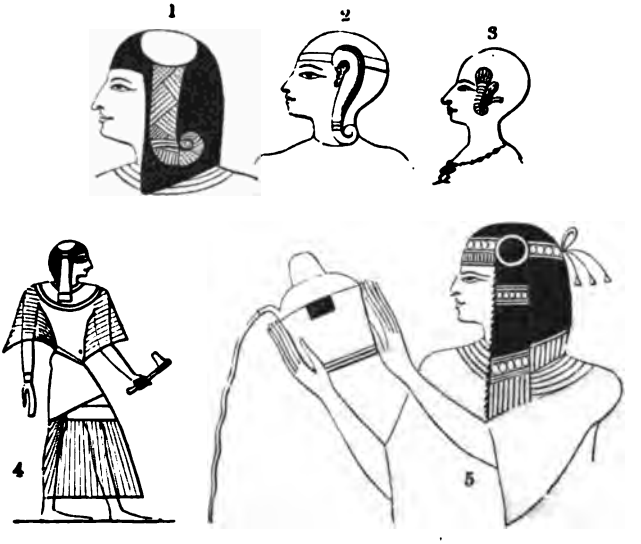
[1] Woodcuts No. 109, *fig.* 5, and No. 426.
[2] Woodcut No. 457, *fig.* 1.
[3] Woodcut No. 436, *fig.* 4.
[4] Woodcut No. 436, *fig.* 5.

The costume of the hierogrammateus, or sacred scribe, consisted of a large kilt or apron, either tied in front, or wound round the lower part of the body; and the loose upper robe with full sleeves, which, in all cases, was of the finest linen: he had sometimes one or two feathers on his head, as described by Clemens of Alexandria[1] and Diodorus.[2]

The pterophori, when bearing the sacred emblems, wore a long full apron reaching to the ankles, tied in front with long bands, and a strap, also of linen, passed over the shoulder to support it;[3] but they had no upper robe on these occasions. Some-



No. 437. Princes and children. *Thebes.*

1, head-dress of a prince. 2 and 3, lock of hair worn by children. 4, dress of a son of Rameses III. 5, head-dress of a prince, Rameses.

times a priest who offered incense was clad in this long apron, and the full robe with sleeves: sometimes only in the former; and the dresses of the others in like manner varied on different occasions.

The princes wore a dress very like that of the sacred scribe, the apron wound round the body, and divided into three different

[1] 'The hierogrammateus walks first, having feathers on his head, and a book in his hand.' (Clem. Alex. Strom. 5, 6.)

[2] Diodor. i. 87: 'The sacred scribes wear a purple fillet and hawk's feather on their head.' Woodcut No. 436, *fig.* 9. This officer in the Decree of Canopus is called the *pterophoros*, or feather-bearer, in the Greek version, and described as the sacred scribe in the hieroglyphics. (Lepsius, 'Das bilingue Dekret von Canopus,' fol. Berlin, 1870.)—S. B.

[3] Woodcut No. 436, *fig.* 6.

folds, over which was a garment with large sleeves; but their distinguishing mark was a peculiar badge at the side of the head, descending to the shoulder, and frequently adorned and terminated with a gold fringe. This, I suppose, to have contained the lock of hair indicative of youth, which is seen in the statues of Harpocrates, and frequently represented on the heads of children. For though the Egyptians were shaved, and wore wigs and other coverings to the head, children were allowed to leave certain locks of hair;[1] and if the sons of the king, long before they arrived at the age of manhood, had abandoned this youthful custom, the badge was attached to their head-dress as an emblem of their rank as princes; or really to show they had not, during the lifetime of their father, arrived at *kinghood;* on the same principle that a Spanish prince, of whatever age, continues to be styled an 'infant.'

I have already noticed those priests who wore a leopard skin, which some have mistaken for that of the *nebris*, or fawn, and improperly ascribed to Bacchus. It was generally thrown over their dress; its fore-legs sometimes made to form sleeves for the arms; and the robes worn beneath it varied at different times. It was usually confined to the high-priests, who superintended the sacrifices and processions of the sacred boats or arks; who presented the offerings at the altar of the gods, and at the funerals of individuals, or who anointed the king at his coronation; and the same badge was assumed by the monarch when officiating on similar occasions.

The robes of the sovereign varied, of course, according to his immediate occupation. When engaged as high-priest, they much resembled those worn by the principal functionaries of the sacerdotal order, with the exception of the apron and head-dress, which were of peculiar form, and belonged exclusively to his rank as king.

This apron was richly ornamented in front with lions' heads and other devices, probably of coloured leather; and the border was frequently formed of a row of asps, the emblems of royalty. Sometimes the royal name, with an asp on each side as *supporters*, was embroidered upon it, the upper part being divided into square compartments of different colours; but it is not improbable that this formed an appendage to the girdle, rather than to the apron; and several straps falling down at the side of

[1] Woodcuts No. 437, *fig.* 3; and No. 220, *fig.* 2.

the centre piece show that it was tied in front, and came over the folds of the apron, and even of the upper robes.

The head-dress of the king, on state occasions, was the crown of the upper or of the lower country, or the *pshent*, the union of the two. Every king, after the sovereignty of the Thebaïd and Lower Egypt had become once more vested in the same person, put on this double crown at his coronation; and we find in the

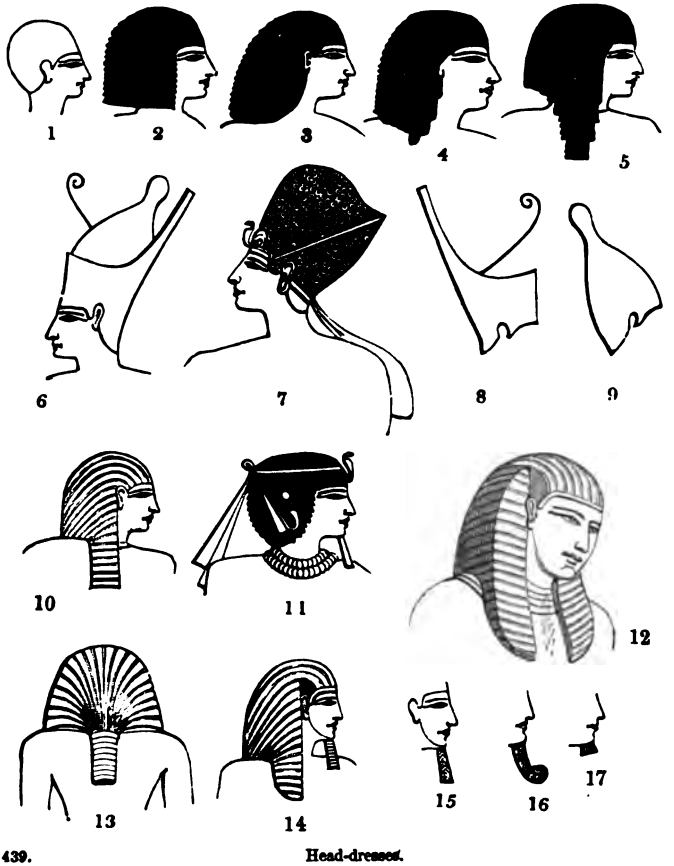
No. 438. Dress of the king.

2, 3, the king's apron. 3 is from a statue of Amenophis III. in the Museum at Alnwick Castle. 4, wreath of the crown of Sabaco's statue at the Isle of Argo.

grand representation given of this ceremony at Medeenet Haboo, that the principal feature of the proclamation, on his ascension to the throne, was the announcement to the four sides of the world, that 'Rameses had put on the crown of the upper and lower country.' He even wore his crown during the heat of battle,[1] like the kings of olden days in Europe; sometimes merely

[1] Generally the king wore a peculiar kind of helmet called *χepers'*, larger and broader at the top, which is vaulted, than where it fitted the head. It is always, when painted, coloured blue with yellow amulets, perhaps intended to represent studs. The helmet of Psammatichus I. was of bronze, and the Shairetana, or Sardinians, evidently wore metallic helmets, so that the regal helmets may have been of steel covered with brass or gold studs. According to some, it was of panther skin. A riband was attached to it. (Pierret, 'Dict. d'Arch. Égypt.' p. 119.)—S. B.

a wig; but a helmet,[1] made apparently of woollen stuff with a thick nap, not very unlike the modern Persian cap, was generally preferred; and in religious ceremonies he put on a striped head-



No. 439. Head-dresses.

1, a close cap. 2, 3, 4, 5, wigs. 6, the crown of the upper and lower country, or 8 and 9 united. 10 to 14, royal head-dresses. 15, beard of a king. 16, of a god. 17, of a private individual of rank.

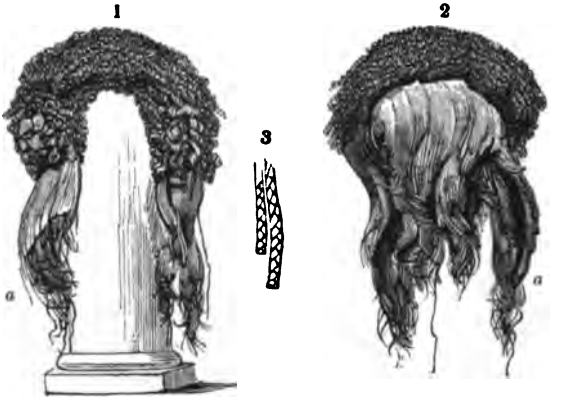
dress, probably of linen, which descended in front over the breast, and terminated behind in a sort of *queue* bound with riband.[2] When crowned, the king invariably put on the two crowns at the same time, though on other occasions he was permitted to wear

[1] The Egyptian helmet had no crest. I have mentioned the origin of crests. The Greek crest was copied from the mane of a horse; and in illustration of this we frequently find the scales or cheek-pieces of the helmet made to imitate the ears of that animal, which, when raised and turned up, project from the upper part on either side. Conf. Iliad, A, 382, the helmet of Achilles with a horse's tail, and Virg. Æn. x. 369.

[2] Woodcut No. 439, *fig.* 13.

each separately, whether in the temple, the city, or the field of battle; and he even appeared in his helmet[1] during the ceremonies in honour of the gods. On some occasions he wore a short wig, on which a band was fastened, ornamented with an asp, the emblem of royalty.[2]

It may appear singular that so warm a covering to the head should have been adopted in the climate of Egypt; but when we recollect that they always shaved the head, and that the reticulated texture of the groundwork, on which the hair was fastened,



No. 440. Front and back of an Egyptian wig, in the British Museum. 3 shows the appearance of the long plaits, *a a*.

allowed the heat of the head to escape, while the hair effectually protected it from the sun, it is evident that no better covering could have been devised, and that it far surpassed in comfort and coolness the modern turban, which is always found by those who are in the habit of wearing it, to be very agreeable in hot weather, provided all the particulars are attended to which the Turks find so essential, but which those Europeans who merely put it on for effect too often neglect.

The upper portion of the wig was frequently made with curled, and not with plaited hair, this last being confined to the sides and lower part, as is the case in the wigs preserved in the British and Berlin Museums; but the whole was sometimes composed of a succession of plaits, commencing from the centre of the crown, extending downwards, and increasing in length

[1] Herodot. ii. 151.

[2] Woodcut No. 439, *fig.* 11.

towards the bottom. Some smaller wigs, worn by persons of rank, consisted of short locks of equal length, arranged in uniform lines, imitations of which appear to have been made in woollen or other stuffs, under the denomination of false wigs, for the use of those who could not afford the more expensive quality of real hair.

Wigs were worn both within the house and out of doors, like the turban of the present day; and a priest might even officiate on some occasions in his wig. At parties, the head-dress of every guest was bound with a chaplet of flowers, and ointment[1] was put upon the top of the wig, as if it had really been the hair of the head;[2] and one instance occurs of a wreath of leaves placed round the crown of a king, on a statue of Sabaco, in Ethiopia, precisely similar to those worn by the Romans.[3]

Wig, about 2½ feet in length, seen in front. No. 441. *Berlin Museum.*

The Egyptians, says Herodotus, 'only let the hair of their head[4] and beard grow in mourning, being at all other times shaved;'[5] which agrees perfectly with the authority of the Bible,[6] and of the sculptures. So particular, indeed, were they on this point, that to have neglected it was a subject of reproach and ridicule; and whenever they intended to convey the idea of a man of low condition, or a slovenly person, the artists represented him with a beard.[7] It is amusing to find that their love of caricature was not confined to the lower orders, but extended even to the king; and the negligent habits of Rameses VII. are indicated in his tomb at Thebes by the appearance of his chin, blackened by an unshorn beard of two or three days' growth. But it was likewise given as the test of hardships undergone in a severe campaign; and the warlike character of Rameses the Great is pointed out in the same manner.

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[1] Athen. xv. 13, and Juv. Sat. xv. 50.

[2] The chaplet was called *meh*, or crown, the head oil, or ointment, *api*, or *tepi*.—S. B.

[3] Woodcut No. 438, *fig.* 4.

[4] Diodorus (i. 18) states that they suffered the hair to grow when on a journey; but this was probably on accomplishing a vow.

[5] Herodot. ii. 36, and iii. 12. [Juvenal, Sat. vi. 532.—G. W.]

[6] Gen. xli. 14. Joseph, when sent for by Pharaoh from prison, 'shaved himself, and changed his raiment.'

[7] Woodcut No. 135.

The Egyptians did not confine the privilege of shaving to freeborn citizens, like the Romans, who obliged slaves to wear their beards and hair long, and only permitted them the use of a cap[1] after they had been enfranchised; and though foreigners who were brought to Egypt as slaves had beards on their arrival in the country, we find that so soon as they were employed in the service of this civilised people, they were obliged to conform to the cleanly habits of their masters, their beards and heads were shaved, and they adopted a close cap.

The priests were remarkable for their love of cleanliness, which was carried so far, that they shaved the whole body every three days, and performed frequent daily ablutions, bathing twice a day and twice during the night.[2] It was not confined to their order; every Egyptian prided himself on the encouragement of habits which it was considered a disgrace[3] to neglect: we can, therefore, readily account for the disgust they felt on seeing the squalid appearance and unrefined habits of their Asiatic neighbours, whose long beards were often the subject of ridicule to the Egyptian soldier; and for their abhorrence of the bearded and long-haired Greeks, which was so great, that, according to Herodotus,[4] 'no Egyptian of either sex would on any account kiss the lips of a Greek, make use of his knife, his spit and caldron, or taste the meat of an animal which had been slaughtered by his hand.' The same habits of cleanliness are also indicated by the 'changes of raiment' given by Joseph[5] to his brethren when they set out to bring their father to Egypt. Barbers may be considered the offspring of civilisation; and as a Roman youth, when arrived at the age of manhood, cut off his beard, and consecrated it to some deity as a token of his having emerged from a state of childhood, so a people, until they have adopted the custom of shaving, may be supposed to retain a remnant of their early barbarism. The Romans, at first, like other people, allowed their beards to grow, until about 454 years after the building of the city (B.C. 299), when P. Ticinius Mena, having brought barbers from Sicily, introduced the custom at Rome; and, as Pliny states,[6] 'Scipio Africanus was the first Roman who shaved every day.' They resembled the Egyptians rather than

[1] Livius, xlv. 44: 'Pileatum, capite raso . . . . libertum.'
[2] Herod. ii. 37. Porphyry says thrice a day, and a nocturnal ablution occasionally.
[3] Ibid. ii. 37. Plut. de Isid. s. 3.
[4] Ibid. ii. 41 and 91.
[5] Gen. xlv. 22: 'To all of them he gave each man changes of raiment; but to Benjamin he gave three hundred pieces of silver, and five changes of raiment.'
[6] Plin. vii. 59.

the Greeks in this respect, and in the habit of allowing the hair of the head[1] and beard to grow in mourning; the Greeks, on the contrary, shaving themselves on those occasions.

The prejudice of these last in favour of long hair[2] seems to be retained to the present day; for though the modern Greeks have adopted a *Moslem* custom, and wear the red *faz* of the coast of Barbary, they have remained insensible to the comfort and cleanliness of shaving, and have preferred the inconsistency of covering the head with a close cap[3] and cherishing the growth of long hair.

With the Egyptians it was customary to shave the heads even of young children, leaving only certain locks at the front, sides, and back;[4] and those of the lower classes were allowed to go out in the sun with the head exposed, without the protection of a cap, which is the reason assigned by Herodotus[5] for the hardness of the Egyptian skulls compared with those of other people. 'I became acquainted,' says the historian, 'with a remarkable fact, which was pointed out to me by the people living in the neighbourhood of the field of battle, where the Egyptians and the army of Cambyses fought; the bones of the killed being still scattered about, those of the Persians on one side, and of the Egyptians on the other. I observed that the skulls of the former were so soft that you could perforate them with a small pebble, while those of the latter were so strong that with difficulty you could break them with a large stone. The reason of which, as they told me, and I can readily believe it, is that, the Egyptians being in the habit of shaving their heads from early youth, the bones become thickened; and hence, too, they are never bald, for certainly, of all countries, nowhere do you see fewer bald people than in Egypt. The Persians, on the contrary, have soft skulls, in consequence of their keeping the head covered from the sun, and enveloped in soft caps. I also observed the same of those who were killed in the battle between Achæmenes and Inarus the Libyan.' It was usual for the lower orders to work in the sun without any covering to the head, as the modern peasants of Egypt, who appear to inherit from their predecessors skulls of uncommon

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[1] And in youth: whence children are called 'capillatos' by Petronius Arbiter (Satyr.). Martial, Epigr. lxii. lib. 10.

[2] Homer, Il. B, 11; Θ, 53, &c. Apollo was represented with long hair. 1 Cor. xi. 14.

[3] The Greeks ridicule and abhor our unbecoming hats, but there is not the same objection to them on the score of cleanliness.

[4] As with the Chinese, and modern Egyptians. Woodcut No. 220, *fig.* 2.

[5] Herod. iii. 12.

hardness; and we see the same class of persons represented in the paintings with and without a cap, whether in the house or in the open field. Herodotus says,[1] when the Egyptians perform their vows, they shave the heads of their children, either entirely, or half, or only a third;[2] and putting the hair and some silver into a pair of scales, dedicate an equal weight of the latter to the animal which is sacred to the deity they invoke. This does not, however, imply that they left the whole head unshaven; and the hair to which he refers was probably the long pendent locks represented in the Theban sculptures. Persons of all classes occasionally wore caps, some of which were large, others fitting tight to the head; but these last were considered far less becoming than the wig, and suited rather to the lower orders than to persons of rank. Women always wore their own hair,[3] and they were not shaved even in mourning or after death.

The use of wigs was not confined to the Egyptians of all people of antiquity: the Romans, under the Emperors, adopted also a sort of perruque, called *capillamentum* or *galerus*, though it seems rather to have been worn by women than men; and Juvenal[4] describes Messalina putting on a wig of flaxen hair to conceal her own black locks when she left the palace in disguise.

The most singular custom of the Egyptians was that of tying a false beard upon the chin, which was made of plaited hair, and of a peculiar form, according to the person by whom it was worn. Private individuals had a small beard, scarcely two inches long; that of a king was of considerable length, square at the bottom; and the figures of gods were distinguished by its turning up at the end. No man ventured to assume, or affix to his image, the beard of a deity; but after their death it was permitted to substitute this divine emblem on the statues of kings, and all other persons who were judged worthy of admittance to the Elysium of futurity, in consequence of their having assumed the character of Osiris, to whom the souls of the pure returned on quitting their earthly abode.

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[1] Herod. ii. 65.

[2] The barber, called *ḥaq*, was in constant employment, and scenes of shaving are represented in the sculptures. His instruments and razors varied at different times, being sometimes in shape of a small short hatchet, with recurved handle; other instruments, knife-shaped, were also employed. These were carried in a small open-mouthed bag. He is described in a papyrus as hard at work, going about from street to street seeking for employment till the evening. ('Records of the Past,' vol. iii. p. 148.) —S. B.

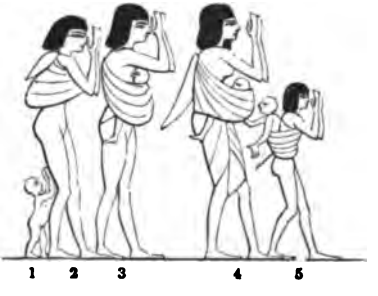
[3] 1 Cor. xi. 6.

[4] Juv. Sat. vi. 120: 'Et nigrum flavo crinem abscondente galero.' [The ancients often dyed their hair, a practice condemned by Clemens of Alexandria (Pædagog. iii. c. 2 and 3), and also by St. Jerome.—G. W.]

The form of the beard, therefore, readily distinguishes the figures of gods and kings in the sacred subjects of the temples; and the allegorical connection between the sphinx and the monarch is pointed out by its having the kingly beard, as well as the crown, and other symbols of royalty.

The dresses of children of the lower classes were very simple; and, as Diodorus[1] informs us, the expenses incurred in feeding and clothing them amounted to a mere trifle. 'They feed them,' he says, 'very lightly, and at an incredibly small cost; giving them a little meal of the coarsest and cheapest kind, the pith of the papyrus, baked under the ashes, with the roots and stalks of some marsh weeds, either raw, boiled, or roasted; and since most of them are brought up, on account of the mildness of the climate, without shoes, and indeed without any other clothing,[2] the whole expense incurred by the parents does not exceed 20 drachmæ (about 13 shillings) each; and this frugality is the true reason of the populousness[3] of Egypt.' But the children of the higher orders were often dressed like grown persons, with a loose robe reaching to the ankles, and sandals.[4]

Infants do not appear to have been swaddled, as among the Jews, Greeks, and Romans. When too young to walk, if taken out by a mother or nurse, they were carried in a shawl, suspended at her back, before her or at her side; a custom still retained by the women of the Moghrebin Arabs; and in Ethiopia they were carried in baskets, supported at the mother's back by a band passing over her forehead.[5]



Women carrying their children in a funeral procession. *Thebes.* No. 442.

Sometimes, though nearly or entirely naked, the neck of an Egyptian child was decorated with a string of beads; and occasionally a *bulla*, or charm, was suspended in the centre, representing the symbol of truth and justice, which has been supposed also to indicate the heart, and is usually found in the

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[1] Diodor. i. 80.

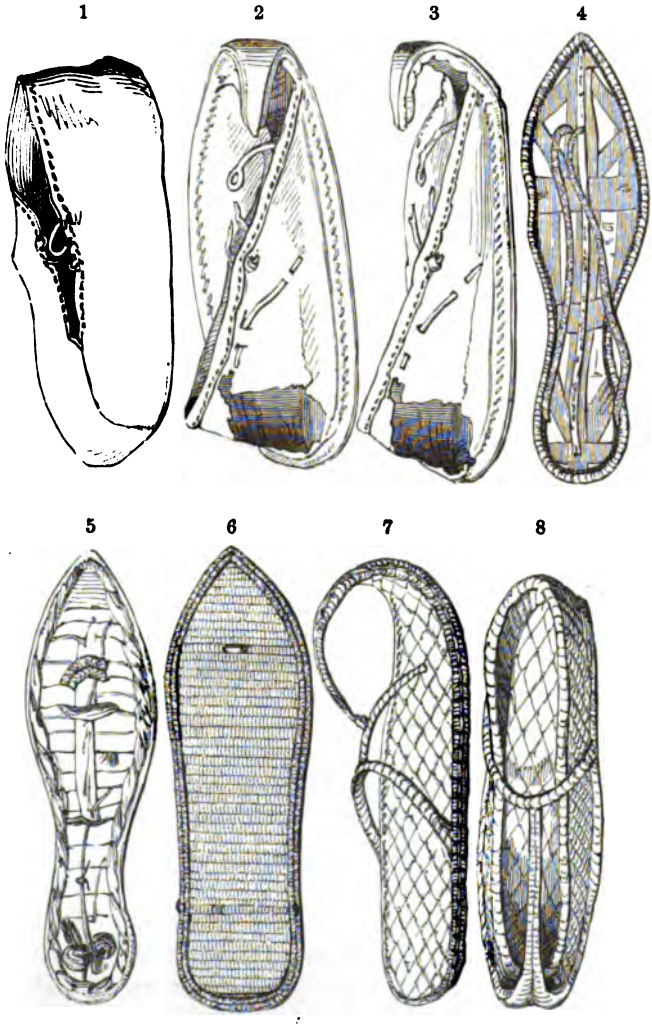
[2] Woodcut No. 220, *fig.* 2, and No. 442.

[3] Pliny (vii. 3) might attribute it to the Egyptian women having occasionally *seven* children at a birth. He gives as his authority, Trogus.

[4] Plate XII., *fig.* 1.

[5] Woodcut No. 88.

balance of the judgment scenes, as a representative of the good works of the deceased. A *bulla* of this kind was worn by the youth-



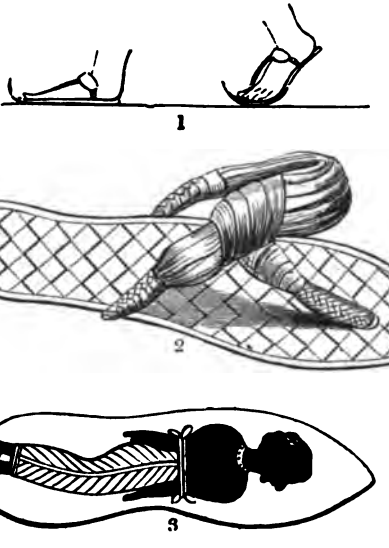
No. 443. Sandals and shoes found in Egypt.

1, 2, 3, shoes of green leather, probably of Greek time. Mr. Salt's Collection.
4, 5, upper and lower side of a pair of sandals, made of palm leaves and the papyrus, 11 inches long and 3 broad. In the Museum of Alnwick Castle.
6, sole of a sandal 1 foot long and 3¼ inches broad. Alnwick Castle.
7, a sandal, and 8, a sandal with sides like a shoe, both in the Berlin Collection.

ful deity Harpocrates.[1] It was probably of gold, or hard stone, like

[1] Materia Hieroglyphica, Pantheon, plate 17, *fig.* 3.

those of the Romans;[1] and others worn by the poorer classes, as at Rome and in modern Egypt, were of leather. They were supposed to prompt the wearer to virtue and wisdom, to keep off the evil eye, or to avert misfortune; and superstition induced many to appeal to them in danger, and derive from them omens of forthcoming events. Sometimes a charm consisted of a written piece of papyrus tightly rolled up, and sewed into a covering of linen or other substance, several of which have been found at



No. 444. Sandals. *Berlin Museum.*

1, from the sculptures. 2, in the Berlin Museum; made of the papyrus. 3, figure of a captive on the sole.

Thebes; and emblems of various deities were appended to necklaces for the same purpose.

Ladies and men of rank paid great attention to the beauty of their sandals; but on some occasions those of the middle classes who were in the habit of wearing them preferred walking barefooted; and in religious ceremonies the priests frequently took them off while performing their duties in the temple. The sandals[2] varied slightly in form: those worn by the upper classes

[1] The Roman and Etruscan children had sometimes three or four *bullæ*, as we see from statues that have been found. (Virg. Æn. xii. 942). Pliny (xxxiii. 1) explains who wore the golden *bulla*, and who the leathern *lorum*. (Juv. Sat. xiii. 33, and Pers. Sat. v. 31, &c.)

[2] Sandals did not come into use till the 5th Dynasty, and there is no instance of them before that time on the marbles. They

and by women were usually pointed and turned up at the end, like our skates and many Eastern slippers of the present day. Some had a sharp flat point, others were nearly round. They were made of a sort of woven or interlaced work, of palm leaves and papyrus stalks, or other similar materials, sometimes of leather, and were frequently lined within with cloth, on which the figure of a captive was painted;[1] that humiliating position being considered suited to the enemies of their country, whom they hated and despised—an idea agreeing perfectly with the expression which so often occurs in the hieroglyphic legends accompanying a king's name, when his valour and victories are recorded on the sculptures: 'You have trodden the impure Gentiles under your powerful feet.' Shoes, or low boots, were also common in Egypt, many having been found at Thebes:[2] but these I believe to have been of late date, and to have belonged to Greeks; for, since no persons are represented in the paintings wearing them except foreigners,[3] we may conclude they were not adopted by the Egyptians, at least in a Pharaonic age. They were of leather, generally of a green colour, laced in front by thongs, which passed through small loops on either side, and were principally used, as in Greece and Etruria, by women.

The dresses of women consisted sometimes of a loose robe or shirt, reaching to the ankles, with tight or full sleeves, and fastened at the neck, like those of the men, with a string, over which they wore a sort of petticoat, secured at the waist by a girdle; and this, in mourning, while bewailing the death of a relative, was frequently their only dress.[4]

Such was the costume of the lower classes of women; and sometimes indeed, as at the present day, it consisted merely of the loose shirt or robe, without shoes or sandals.

The higher orders wore a petticoat or gown, secured at the waist by a coloured sash, or by straps over the shoulders; and above this was a large loose robe, made of the finest linen, with full sleeves,[5] and tied in front below the breast; and during some religious ceremonies the right arm was taken out of the sleeve

were, when off the feet, sometimes carried by an attendant, showing that they were not always worn. On entering the royal presence, they were taken off. Their shape varied at different periods: that of No. 444, *fig.* 1, is of the period of the 20th Dynasty. —S. B.

[1] Woodcut No. 444, *fig.* 3.

[2] Woodcut No. 443, *figs.* 1, 2, 3.

[3] Plate XII.; and woodcut No. 78, *fig.* 1.

[4] Woodcut No. 7. Herodot. ii. 85.

[5] Materia Hierog. part 2, plate iv.; and woodcut No. 8, *fig.* 5.

and left exposed,[1] as in the funeral processions. The petticoat or gown was of richly-coloured stuff, presenting a great variety of patterns, not unlike our modern chintzes, the most elegant of which were selected for the robes of deities and the dresses of queens.

No. 445. Dresses of women.

The sash in *figs.* 1 and 2, though represented at the side, is to be understood as tied in front. In *fig.* 3 the side hair appears to be fixed by a comb; and before it, on the cheek, the short hair is arranged in separate plaits. *Fig.* 4 shows the shirt tied at the neck; it is a terra-cotta statue.

Slaves or servants were not allowed to wear the same costume as ladies, and their mode of dressing the hair was different. They generally bound it at the back part of the head into a sort of loop, or arranged it in one or more long plaits at the back, and eight or nine similar ones were suffered to hang down at either side of the neck and face.[2] They wore a long tight gown, tied at the neck, with short close sleeves, reaching nearly to the elbow; and sometimes a long loose robe was thrown over it, when employed to dance, or to present themselves on festive occasions; and strings of beads were worn round their hips, as is now the case in Kordofan and Upper Ethiopia, where also the women dress their hair like the ancient Egyptians, in two parts, as in woodcut No. 445, *fig.* 3.

[1] Woodcut No. 8, *figs.* 1, 2, and 3. Rosellini, pl. xix. No. 1.
[2] Woodcuts No. 261 and No. 304.

Ladies wore their hair long and plaited. The back part was made to consist of a number of strings of hair, reaching to the bottom of the shoulder-blades, and on each side other strings of the same length descended over the breast. The hair was plaited in the triple plait, the ends being left loose; or, more usually, two or three plaits were fastened together at the extremity by woollen string of corresponding colour. Around the head was bound an ornamental fillet, fastened with a lotus bud, falling over the forehead; and the strings of hair at the sides were separated and secured with a comb or a band, ornamented in various ways according to the fancy of the wearer; and occasionally a round stud or pin was thrust into them at the front. The women of ancient Egypt appear to have been very pretty, though some authors have denied this. Their charms were recommended to Cambyses.

Head-dress of a lady, from a mummy-case. No. 446.

The short hair at the side of the face, which the ingenuity of ancient Roman[1] and modern European ladies has, by the aid of gum, compelled to lie in an immovable curve upon the cheek, was interwoven with several of its longer neighbours; and these, being bound together at the end with string or in a single 'corkscrew' curl, fell down before the earring, which they partially concealed. This appears to have been peculiar to married women.

Many of the mummies of women have been found with the hair perfectly preserved, plaited in the manner I have mentioned; the only alteration in its appearance being the change of its black hue, which became reddened by exposure to great heat during the process of embalming. Sometimes, too, the hair of another person, perhaps an attached relative, was buried with the mummy.

The earrings most usually worn by Egyptian ladies[2] were large, round, single hoops[3] of gold, from one inch and a half to two inches and one-third in diameter, and frequently of a still

[1] This little *crève-cœur* appears in the busts of several Roman ladies of the time of the Empire.

[2] [Earrings were, and are, worn by men in Africa and Italy, but not by men in Egypt.—G. W.]

[3] Woodcuts No. 452, *fig.* 5, and No. 296.

greater size; or made of six rings soldered together.[1] Sometimes an asp, whose body was of gold set with precious stones, was worn by persons of rank as a fashionable caprice; but it is probable that this emblem of majesty was usually confined to members of the royal family.

Earrings of other forms have also been found at Thebes, but their date is uncertain; and it is difficult to say if they are of an ancient Egyptian age, or of Greek introduction. Of these the most remarkable are a dragon,[2] and another of fancy shape, which is not inelegant.[3] Some few were of silver, and plain hoops, like those made of gold already noticed, but less massive, being of the thickness of an ordinary ring; at one end was a small opening, into which the curved extremity of the other caught after it had been passed through the ear;[4] and others were in the form of simple studs.[5]

Women wore many rings,[6] sometimes two and three on the same finger. The left was considered the hand[7] peculiarly privileged to bear these ornaments; and it is remarkable that its third finger was decorated with a greater number than any other, and was considered by them, as by us, *par excellence* the ring finger;[8] though there is no evidence of its having been so honoured at the marriage ceremony.[9] They even wore a ring on the thumb;

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[1] Woodcut No. 452, *figs.* 6 and 7.

[2] Woodcut No. 448, *fig.* 10, not unlike one of the Chinese dragons.

[3] Woodcut No. 448, *fig.* 21.

[4] Woodcut No. 452, *fig.* 5.

[5] Cf. Woodcut No. 452, *fig.* 4.

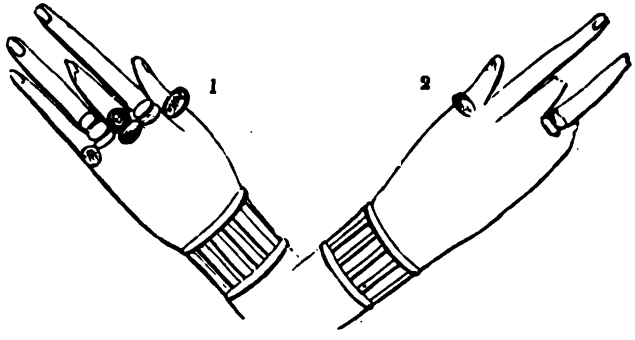
[6] In the great Harris papyrus signets, *χatem*, and finger-rings, *teb*. The principal varieties of rings are already described in the text. Those with square revolving bezels or scarabæi are of the period of the 18th and 19th dynasties. Solid gold rings, with oval bezels, appear to be rather later, as do those with square bezels. Silver, plated copper, or bronze rings of the same shape, came into use at the same time, and continued till the Greek and Roman period, when iron rings of the shape were introduced. The use of the scarabæus declined after the 20th Dynasty. When set in swivel rings, they were mounted in a gold frame round the edge, which was sometimes engrailed. The seals attached to letters of the Ptolemaic and Roman period appear to have been impressed from signet rings. The porcelain rings are of the 18th and 19th dynasties, not later. Cylinders have been rarely if ever found set as swivel rings, although a plain lapis-lazuli one, in an Egyptian setting, is in the collection of the British Museum. Solid jasper, carnelian, and other rings of hard stone, are found in all collections, and were evidently in use in the days of Rameses III., and later; but none occur at an early period. It is very difficult to distinguish between the ring worn for mere ornament and the signet employed to seal epistles and other things. Signet and other rings are often found on the fingers of the mummies, and were buried with them—a custom not found prudent or convenient at the present day. The devices on rings were, as stated above, very various.—S. B.

[7] The same with the Romans (Plin. xxxiii. 1); they wore rings on all but the middle finger. This last was preferred by the Gauls and Britons.

[8] Plin. xxxiii. 1. Of the fingers on which rings were worn. [Macrob. Sat. vii.—G. W.]

[9] Plin. (xxxiii. 1) mentions the iron ring worn by a person betrothed. He thinks they had no rings in Homer's time. But in Egypt they were used long before. [Clem. Alex. Pædagog. iii. 99.—G. W.]

and I have seen upon the right hand of a wooden figure a ring on the thumb and two on the third finger; and upon the left, one upon the thumb and little finger, two on the fore and second fingers, and three on the third, as may be seen in the accompanying



Hands of a wooden figure of a woman. On the lid of a mummy-case in the British Museum. No. 447.

woodcut. The upper ring on the middle finger is set with a shell of a species common in the Red Sea, a *monodonta*, or a *trochus*.

Some rings were simple; others were made with a scarabæus, or an engraved stone; and they were occasionally in the form of a snail, a knot, a snake, or some fancy device. They were mostly of gold; and this metal seems to have been always preferred to silver for rings and other articles of jewellery. Silver rings, however, are occasionally met with; and two in my possession, which were accidentally found in a temple at Thebes, are engraved with hieroglyphics containing the name of the royal city.

Bronze was seldom used for rings, though some signet rings were of this material. Some have been discovered of brass[1] and iron (of a Roman time, as I before observed);[2] but ivory and blue porcelain were the materials of which those worn by the lower classes were usually made. The scarabæus was the favourite form both for rings and the ordinary ornaments of necklaces: in some, the stone, flat on both faces, turned on pins, like many of our seals at the present day; and the ring itself was bound round at each end, where it was inserted into the stone, with gold wire. This was common not only to rings but to signets, and was intended for ornament as well as security.

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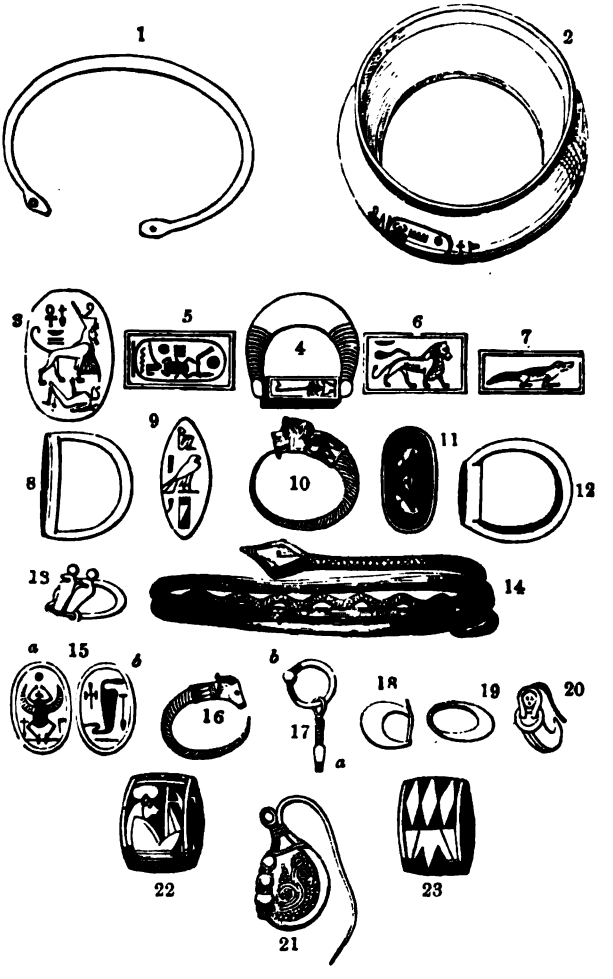
[1] I am not sure if the alloy in them is zinc. I suspect it to be gold.
[2] Plin. xxxiii. 1 and 3, on iron rings.

One of the largest signets I have seen was in the possession of a French gentleman at Cairo, which contained twenty pounds'



No. 448. Rings, signets, bracelets, and earrings.

Fig. 1. Bronze bracelet, or bangle, in the Museum of Alnwick Castle. 2. Gold bracelet in the Leyden Museum, bearing the name of Thothmes III., 1¼ inch high, and 3 inches in diameter. 3. Scarabæus of amethyst, with a sphinx, emblematic of the king, trampling on a prostrate enemy; over it is the expression 'Good God, Lord of the world.' 4. A gold signet, mentioned in this page. 5, 6, 7. The three other sides of the plinth. 8. A gold ring. 9. The engraved face of it. 10. A gold earring, about 1¼ inch in diameter. 12. A gold ring in my possession, four-fifths of an inch in diameter. 11. The face of it, of the real size. 13. Gold ring with two aspa. 14. A snake bracelet of gold. 15. A stone scarabæus. 16. Gold earring. 17. Gold earring with two pearls, *a* and *b*. 18, 19, 20. Other gold earrings. 21. Gold earring, 1 inch high, and six-tenths broad. 22, 23. Ring of porcelain, or blue-glazed pottery; Museum of Alnwick Castle.

worth of gold. It consisted of a massive ring, half an inch in its largest diameter, bearing an oblong plinth, on which the devices

were engraved,[1] one inch long, $\frac{6}{10}$ in. in its greatest, and $\frac{4}{10}$ in. in its smallest breadth. On one face was the name of a king, the successor of Amenophis III., who lived about B.C. 1400; on the other a lion, with the legend 'Lord of strength,' referring to the monarch: on one side a scorpion, and on the other a crocodile.[2] Two cats, sitting back to back and looking round towards each other, with an emblem of the goddess Athor between them, seem to have been a favourite device on gold rings; and I have seen three or four of this pattern, one of which is in my possession.[3]

They also had large gold anklets or bangles,[4] armlets, and bracelets,[5] frequently inlaid with precious stones or enamel; some were in the shape of snakes, and others as simple rings, and worn by men as well as women. Kings are often represented with armlets and bracelets; and in the Leyden Museum is a gold one[6] bearing the name of the third Thothmes, which was doubtless once worn by that monarch; and, without any great licence of imagination, we may suppose it to have been seen by Moses himself, if Thothmes was the Pharaoh who oppressed the Israelites, and into whose presence the Jewish legislator was so often summoned.

Handsome and richly-ornamented necklaces were a principal part of the dress, both of men[7] and women; and some idea may be formed of the number of jewels they wore from those borrowed by the Israelites at the time of the Exodus, and by the paintings of Thebes. They consisted of gold, or of beads of various qualities and shapes, disposed according to fancy; generally with a large drop or figure in the centre. Scarabæi, gold, and cornelian bottles, or the emblems of goodness and stability, lotus flowers in enamel, amethysts, pearls, false stones, imitations of fish, shells, and leaves, with numerous figures and devices, were strung in all the variety which their taste could suggest; and the sole Museum of Leyden possesses an infinite assortment of those objects, which were once the pride of the ladies of Thebes.

Some wore simple gold chains, in imitation of string, to

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[1] Pliny (xxxiii. 1) is wrong.

[2] Conf. also the gold signet ring with the name and titles of Thothmes III., published by Bonomi in the 'Trans. of the Royal Soc. of Lit.,' 2nd series, vol. i. p. 109.

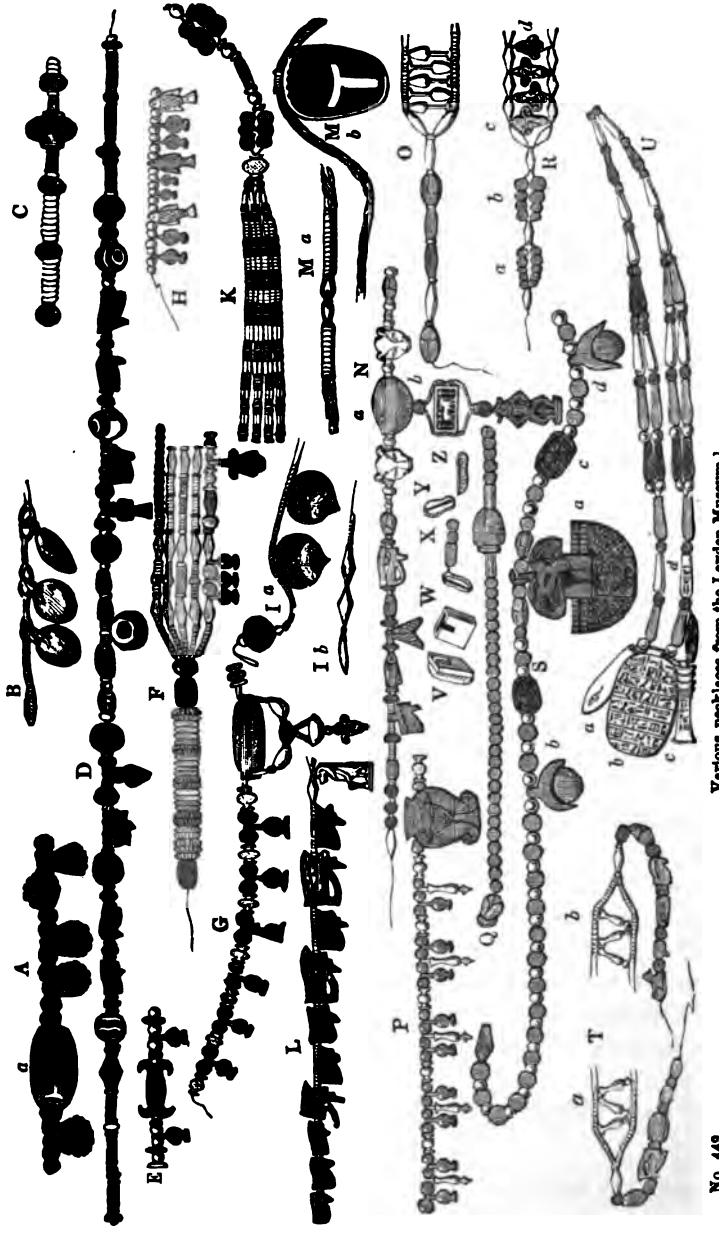
[3] Woodcut No. 448, *figs.* 11 and 12.

[4] Plin. xxxiii. 3.

[5] Called *men nefer en qabi*, 'armlets,' or *al*, 'chains.'

[6] Woodcut No. 448, *fig.* 2.

[7] Necklaces and bracelets were worn by the Carthaginians, and by many Europeans, as the Gauls, Sabines, and others. Judah's bracelets and signet are mentioned in Gen. xxxviii. 18.



No. 449.

Various necklaces from the Leyden Museum.[1]

B is composed of small covered cups, of bronze gilt.
I *b* is the other end of I *a*. These leaves are of gold inlaid with lapis-lazuli and green and red stones.
M *a*, a sort of gold *torques*, or chain, of which a stone scarabæus framed in gold forms the centre ornament.
U, in the possession of Mr. Madox.
V, W, X, Y, Z, gold catches of necklaces, one sliding into the other.

[1] As these necklaces have always been re-strung, the exact arrangement of the beads cannot always be relied on; and in some instances beads from other necklaces, or even collars, have been introduced. The sepulchral scarabæus, for example, *b* in U, could never have been used for a necklace.—S. B.

which a stone scarabæus, set in the same precious metal, was appended; but these probably belonged to men, like the *torques* of the Romans.[1] A set of small cups, or covered saucers, of bronze gilt, hanging from a chain of the same materials, were sometimes worn by women; a necklace of which has been found, belonging to a Theban lady—offering a striking contrast in their simplicity to the gold leaves, inlaid with lapis-lazuli,[2] red and green stones, of another she wore, which served, with many more in her possession, to excite the admiration of her friends.

The devices engraved on scarabæi, rings, and other objects of ornamental *luxe*, varied according to the caprice of individuals. Rings frequently bore the name of the wearer; others of the monarch in whose reign he lived; others, again, the emblems of certain deities; and many were mere fanciful combinations. The greater number consisted of scarabæi, mounted upon a gold ring passing through them: the scarabæus itself was of green stone, carnelian, hæmatite, granite, serpentine, agate, lapis-lazuli, root of emerald, amethyst, and other materials; and a cheaper kind was made of limestone, or steatite, stained to imitate a harder and dearer quality, or of the ordinary blue pottery.

Of the various objects of the toilet, found at Thebes and other places, the principal are bottles or vases for holding ointment and *kohl*[3] or collyrium for the eyes, mirrors, combs, and the small boxes, spoons, and saucers already mentioned. The ointment was scented in various ways, and I have had occasion to notice some preserved in the Museum at Alnwick Castle, which has retained its odour[4] several centuries; and the great use[5] of ointment by the Egyptians is sufficiently indicated in the paintings representing the reception of guests at their parties.

With the exception of the little found in the tombs, we have nothing to guide us respecting the nature of Egyptian ointments. Some appear to be made with a nut oil,[6] but it is probable that animal as well as vegetable grease was employed for this purpose; the other ingredients depending on the taste of the maker, or

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[1] Pharaoh 'put a gold chain about (Joseph's) neck' (Gen. xli. 42), and 'a ring upon Joseph's hand.' Woodcut No. 449, *fig.* M.

[2] Woodcut No. 449, *figs.* B, I *a*.

[3] It has the same name in Hebrew. [Called by the Egyptians *stem* (the Latin *stibium*) or *nustem*; one kind was called *uat*, green or bluish green, and was applied to the lids.—S. B.]

[4] Theophrastus says, 'The Egyptian ointment was not very strongly scented.'

[5] Athenæus says the revenues of Anthylla were given to the queens of Egypt for the purchase of ointments, another term for pin-money (lib. i. 25. Corn. Nep. in Vitâ Agesilai, and Juv. Sat. xv. 50).

[6] This agrees with the *balanon* of Theophrastus. (Plin. xiii. 1.)

the purchaser. Julius Pollux[1] mentions a black kind made in Egypt, and speaks of the *sagdas* as an ointment of that country. Theophrastus,[2] on the contrary, states that Egyptian ointments were colourless; but we can readily account for this variance of opinion by supposing that they had in view two different qualities;[3] which is further proved by the fact of our finding them both preserved at Thebes. Ointment was frequently kept in alabaster[4] bottles, or vases, whence these obtained, among the Greeks, the name of *alabastron*, even if made of other materials; sometimes in those of the onyx[5] or other stone, glass, ivory, bone, or shells;[6] specimens of all of which have been discovered in the tombs.

Strabo[7] says that the common people used the oil of the *kikki*, or castor-berry, for anointing themselves, both men and women; the general purpose to which it was applied being for lamps; and many oils, as from the *simsim*,[8] olive, almond, flax, *selgam*, coleseed, *seemga*, lettuce, and other vegetable productions, were extracted in Egypt.[9]

The custom of anointing the body is usual in hot climates, and contributes greatly to comfort. Even the Greeks, Romans,[10] and others, whose limbs were mostly covered with clothes and protected from the dryness of the air, found the advantage of its use; and those whose skin was much exposed, in consequence of their scanty clothing, as the Ethiopians and other inhabitants of Africa, felt the necessity of softening and cooling the skin by the application of oils or ointments: and we find the custom most prevalent among the blacks who wear the least covering to their body. Their principal care is bestowed upon the hair of the head, which they are not in the habit of shaving, except some of the upper classes among the inhabitants of the large towns; and the highest ambition of the Ethiopians is to obtain a sufficient quantity of grease, whatever kind it may be, to cover their head, and to run down upon the shoulders, so as to give them a shining gloss, which they delight in displaying as they walk in the sun.[11]

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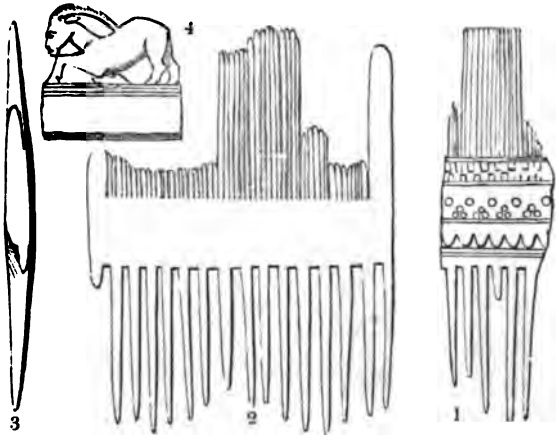
[1] J. Pollux, Onom. vi. 19.
[2] Theophr. de Odoribus.
[3] Plin. xiii. 3. They adulterated their ointments. (Plin. xiii. 1.)
[4] Matt. xxvi. 7: 'An alabaster box of very precious ointment.'
[5] Conf. Hor. iv. Od. xi. 17.
[6] Hor. ii. Od. v. 23.
[7] Strabo, lib. xvii. p. 567. Herod. ii. 94. Plin. xv. 7.
[8] *Sesamum orientale.*
[9] Plin. xiii. 1.
[10] Ennius tells us that, even in the time of Tarquin, they had this custom. Pliny doubts when it was introduced at Rome (xiii. 3).
[11] Virg. Æn. v. 135.

The Egyptian combs were usually of wood, and double, one side having large, the other small teeth; the centre part was frequently ornamented with carved work, and perhaps inlaid. They were about four inches long and six deep; and those with a single row of teeth were sometimes surmounted with the figure of an ibex or other animal.[1]



No. 450. Combs found at Thebes.

1. Comb, with the centre part ornamented.
3. Side view of *fig.* 2.
4. An Ibex, supposed to have formed the top of a comb.

The custom of staining the eyelids and brows with a moistened powder of a black colour was common in Egypt from the earliest times; it was also introduced among the Jews and Romans, and is retained in the East to the present day. It is thought to increase the beauty of the eye, which is made to appear larger by this external addition of a black ring; and many even suppose the stimulus its application gives to be beneficial to the sight. It is made in various ways. Some use antimony, black oxide of manganese, preparations of lead, and other mineral substances; others the powder or the lamp-black of burnt almonds or frankincense; and many prefer a mixture of different ingredients.

Lane[2] is perfectly correct in stating that the expression 'painted her face,' which Jezebel is said to have done when Jehu

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[1] These combs appear to be of a late period, and always made of wood. They are found in the Græco-Egyptian mummies. No representation or allusion to combing the hair is seen or mentioned at the Pharaonic period.—S. B.

[2] 'Modern Egyptians,' vol. i. p. 43.

came to Jezreel, is, in the Hebrew, 'painted her eyes;'[1] the same is again mentioned in Jeremiah and Ezekiel;[2] and the lengthened form of the ancient Egyptian eye, represented in the paintings, was probably produced, as Lane supposes, by this means. Such is the effect described by Juvenal,[3] Pliny,[4] and other writers who notice the custom among the Romans. At Rome it was considered disgraceful for men to adopt it, as at

No. 451. Boxes, or bottles, for holding the *kohl*, for staining the eyelids.

1. In the British Museum. *c* is the bodkin for applying the *stem* or stibium. The others are in the Museum of Alnwick Castle. [*Figs.* 5 and 7 are inscribed with the name of its possessor, 'Kama, priest, eldest royal son of Amen,' a very unusual title.—S. B.]

present in the East, except medicinally; but if we may judge from the similarity of the eyes of men and women in the paintings at Thebes, it appears to have been used by both sexes among the ancient Egyptians.

Many of these *kohl* bottles have been found in the tombs, together with the bodkin used for applying the moistened powder.

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[1] 2 Kings ix. 40. In our translation, 'She painted her face, and tired her head, and looked out at a window.' In the margin, 'put her eyes in painting.'

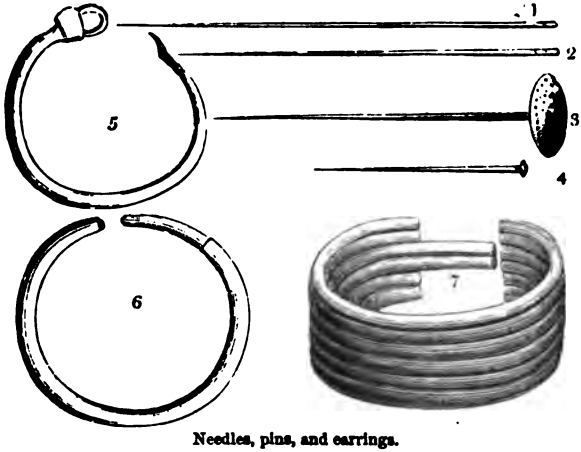
[2] Ezek. xxiii. 40: 'For whom thou didst wash thyself, paintedst thine eyes, and deckedst thyself with ornaments.' In Jeremiah (iv. 30) it is 'eyes' in Hebrew.

[3] Juv. Sat. ii. 93.

[4] Plin. Ep. vi. 2.

They are of various materials, usually stone, wood, or pottery, sometimes composed of two, sometimes of four and five separate cells, apparently containing each a mixture, differing slightly in its quality and hue from the other three. Many were simple round tubes, vases, or small boxes; some were ornamented with the figure of an ape, or monster, supposed to assist in holding the bottle between his arms, while the lady dipped into it the pin, with which she painted her eyes; and others were in imitation of a column made of stone, or rich porcelain of the choicest manufacture.[1]

Pins and needles were also among the articles of the toilet which have been occasionally found in the tombs. The former



No. 452. Needles, pins, and earrings.

1, 2. Bronze needles in the Museum of Alnwick Castle, 3 and 3½ inches long. 3. Large gold-headed pin, in the Berlin Collection. 4. Another, of smaller size. 5. Silver earring, in my possession, one and four-tenths of an inch in diameter. 6. Gold earring in the Berlin Museum, one and one-third of an inch in diameter. 7. Another, seen from above.

are frequently of considerable length, with large gold heads; and some of a different form, tapering gradually to a point, merely bound with gold at the upper end, without any projecting head, seven or eight inches in length, appear to have been intended for arranging the plaits or curls of hair, like those used in England in the days of Elizabeth for nearly the same purpose.

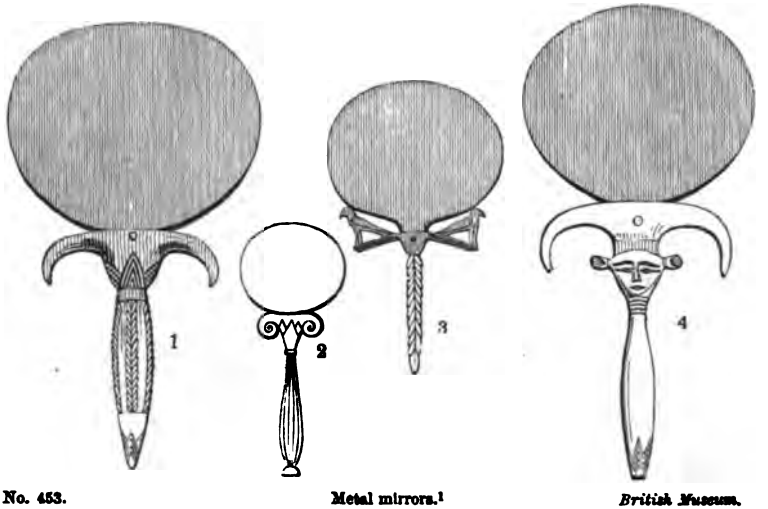
Some needles were of bronze, from three to three and a half inches in length; but as few have been found, we are not able to form any opinion respecting their general size and quality,

[1] The little boxes and cases for holding stibium had occasionally inscriptions on them describing the use of the cosmetic: as, 'to lay on the lids or lashes;' 'good for the sight;' 'to stop bleeding;' 'best stibium,' 'to cause tears.' (Pierret, 'Dict. d'Arch. Égypt.' p. 139.)—S. B.

particularly of those used for fine work, which must have been of a very minute kind.

One of the principal objects of the toilet was the mirror. It was of mixed metal, chiefly copper, most carefully wrought and highly polished; and so admirably did the skill of the Egyptians succeed in the composition of metals, that this substitute for our modern looking-glass was susceptible of a lustre which has even been partially revived at the present day, in some of those discovered at Thebes, though buried in the earth for many centuries.

The mirror itself was nearly round, inserted into a handle of wood, stone, or metal, whose form varied according to the



No. 453. Metal mirrors.[1] *British Museum.*

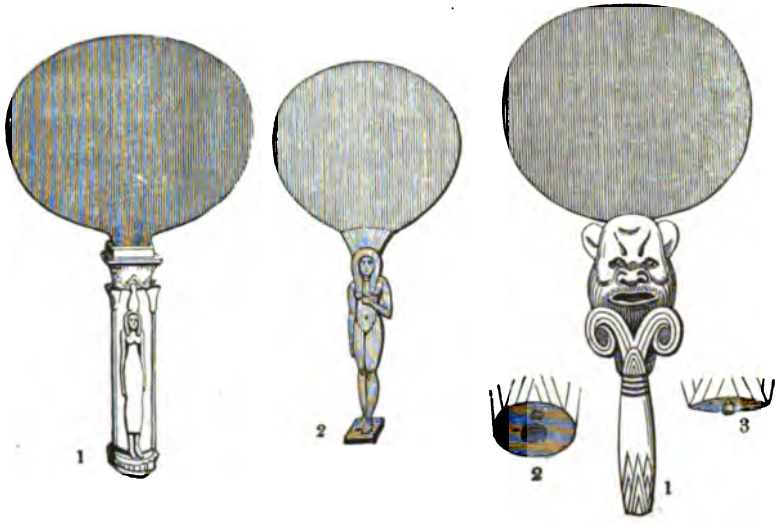
1. Bronze mirror, handle in shape of a papyrus sceptre. 2. Do., handle in shape of lotus column. From a painting at Thebes. 3. Handle in shape of a tress of hair and two hawk standards. 4. Handle in shape of a papyrus sceptre and head of the goddess Athor; about 11 inches high.

taste of the owner. Some presented the figure of a female, a flower, a column, or a rod ornamented with the head of Athor, a bird, or a fancy device; and sometimes the face of the deity Bes was introduced to support the mirror, serving as a contrast to the features whose beauty was displayed within it.[2] The same kind of metal mirror was used by the Israelites, who doubtless brought

[1] [Conf. with the metal mirrors on stands of the Chinese.—G. W.]

[2] The mirrors of the Egyptian period have oval or oblate disks, with spikes to insert into the handles. It is not till the Roman period that the disks became circular. They are always made of a kind of bronze. No brass has been found in Egypt. The mirror was called *maa her*, 'see face,' or *un her*, 'show face.' In order to retain its polish when not in use, it had a leather case, in which it was kept. The handle of the mirror, and sometimes the mirror itself, were inscribed with the name of the possessor.—S. B.

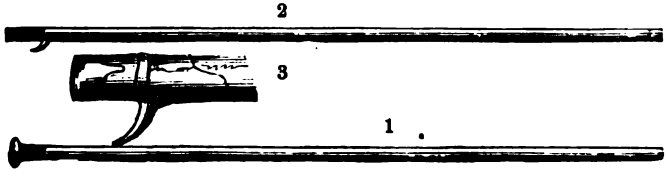
them from Egypt; and the brazen laver made by Moses for the tabernacle was composed 'of the looking-glasses of the women, which assembled at the door of the tabernacle of the congregation.'[1]



Other metal mirrors.

No. 454.—*Fig.* 1, in Mr. Salt's Collection; with a wooden handle, ornamented with the goddess Neneb. *Fig.* 2, in the Museum of Alnwick Castle; handle in shape of the goddess Anucis.

No. 455.—In the possession of Dr. Hogg. *Figs.* 2 and 3 show the bottom of the handle, to which something has been fastened.



No. 456. Walking-sticks found at Thebes.

2 is of cherry-wood, in the British Museum. 3 shows the peg at the side.

When walking from home, Egyptian gentlemen frequently carried sticks, varying from three or four to about six feet in length, some of which were surmounted with a knob, imitating a

[1] Exod. xxxviii. 8: 'He made the laver of brass, and the foot of it of brass, of the looking-glasses of the women assembling.' The word brass, *nahas*, is used in Hebrew, as in Arabic [like the *farass* of Southern Spain, which is evidently a Moorish word —G. W.], to denote copper in any form, or with any alloy. The 'looking-glass' or mirror is, in Hebrew and Arabic, *mirâth*, or *mirâh* [or *marraeh*. In Job xxxvii. 18 a mirror is called *rai*.—G. W.]. The roots of these two words, and probably of the Coptic, are related.

flower,[1] and others with the more usual peg projecting from one side,[2] some of which have been found at Thebes. One in the possession of Mr. Salt, of the latter form, was of *cherry*[3] wood, and only three feet three inches long; and those I have seen with the lotus head were generally about the same length. Others appear to have been much longer; the sculptures represent them at least six feet; and one brought to England by Madox was about five feet in length. On entering a house, they left their stick in the hall or at the door; and poor men were sometimes employed to hold the sticks of the guests who had come to a

No. 457. Priests and other persons of rank walking with sticks. *Thebes.*

party on foot,[4] being rewarded by the master of the house for their trouble with a trifling compensation, with their dinner, or a piece of meat to carry to their family. The name of each person was frequently written on his stick[5] in hieroglyphics (instances of which I have seen in those found at Thebes); for which reason a hard wood was preferred, as the acacia, which seems to have been more generally used than any other.[6]

We have little knowledge of the nature of their baths; but as they were forbidden in deep mourning to indulge in them,[7]

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[1] Woodcut No. 457, *fig.* 4, and No. 456, *fig.* 1.

[2] Woodcut No. 457, *fig.* 2, and No. 456, *fig.* 2.

[3] According to Pliny (xv. 25), this tree was introduced into Italy by Lucullus, from Pontus, and thus went to Britain. He says it would not grow in Egypt, and it is not now found there; but is not a species *indigenous* in the north of our island?

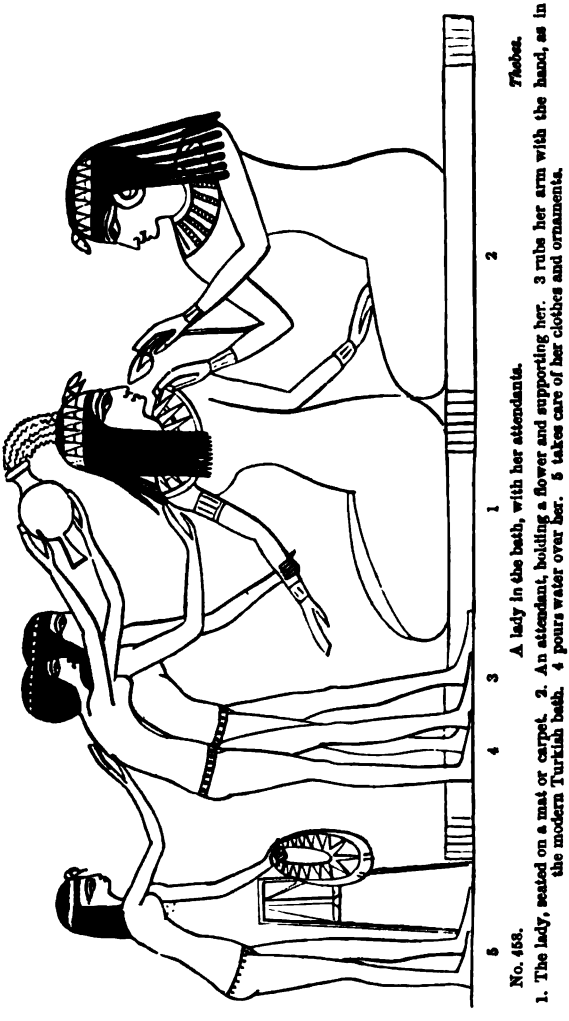
[4] Plate XI., *fig.* 10.

[5] Numb. xvii. 2: 'Write thou every man's name upon his rod.'

[6] The inscriptions on sticks have not only the names of the possessors, but also addresses to the stick itself as the support of their old age. Besides the long walking-stick, a short stick, called *batana*, used for the bastinado, was also used by the Egyptians. Many of the walking-sticks had a head in shape of a papyrus flower.—S. B.

[7] Diod. i. 72.

we may conclude they were considered as a luxury, as well as a necessary comfort. The only instance I have met with in the paintings is in a tomb at Thebes, where a lady is represented with four attendants, who wait upon her, and perform various


Thebes.
A lady in the bath, with her attendants.
1. The lady, seated on a mat or carpet. 2. An attendant, holding a flower and supporting her. 3 rubs her arm with the hand, as in the modern Turkish bath. 4 pours water over her. 5 takes care of her clothes and ornaments.
No. 458.

duties. One removes the jewellery and clothes she has taken off, or suspends them to a stand in the apartment; another pours water from a vase over her head, as the third rubs her arms and body with her open hands; and a fourth, seated near her, holds a sweet-scented flower to her nose, and supports her as she sits.

The same subject is treated nearly in the same manner on some of the Greek vases, the water being poured over the bather, who kneels, or is seated on the ground. Warm[1] as well as cold baths were used by the Egyptians, though for ordinary ablutions cold water[2] was preferred; and both were probably recommended and taken medicinally when occasion required.

The Egyptians paid great attention to health, and 'so wisely,' says Herodotus,[3] 'was medicine managed by them, that no doctor was permitted to practise any but his own peculiar branch. Some were oculists, who only studied diseases of the eye; others attended solely to complaints of the head; others to those of the teeth; some again confined themselves to complaints of the intestines, and others to secret and internal maladies; accoucheurs being usually, if not always, women.[4] They received certain salaries from the public treasury; and after they had studied those precepts which had been laid down from the experience of their predecessors, they were permitted to practise; and in order to ensure their attention to the prescribed rules, and to prevent dangerous experiments being made upon patients, they were punished if their treatment was contrary to the established system; and the death of a person entrusted to their care, under such circumstances, was adjudged to them as a capital offence.[5] If, however, every remedy had been administered according to the sanitary law, they were absolved from blame;[6] and 'these provisions,' says Diodorus, 'were made with the persuasion that few persons could be capable of introducing any new treatment superior to what had been sanctioned and approved by the skill of old practitioners.'

Though paid by Government as a body, it was not illegal to receive fees for their advice and attendance; and demands could be made in every instance, except on a foreign journey and on military service, when patients were visited free of expense.[7] The principal mode adopted by the Egyptians for preventing illness was attention to regimen and diet; 'being persuaded that the majority of diseases proceed from indigestion and excess of eating;' and they had frequent recourse to abstinence, emetics, slight doses of medicine, and other simple means of relieving the

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[1] Diodorus (i. 84) says they were even kept for the sacred animals.
[2] Herodot. ii. 37.
[3] Ibid. ii. 84.
[4] As at present in Egypt. Exod. i. 15.
[5] Pliny (xxix. 1) observes, there is no law to punish their ignorance at Rome, and that a physician is the only man who can kill another with impunity.
[6] Diod. i. 82
[7] Ibid.

system,[1] which some persons were in the habit of repeating every two or three days. 'Those who live in the corn country,' as Herodotus terms it,[2] were particular for their attention to health. 'During three successive days, every month, they submitted to a regular course of medicine;' from the conviction that illness was wont to proceed from some irregularity in diet: and if preventives were ineffectual, they had recourse to suitable remedies, adopting a mode of treatment very similar to that mentioned by Diodorus. The employment of numerous drugs in Egypt has been mentioned by sacred and profane writers; and the medicinal properties of many herbs which grow in the deserts, particularly between the Nile and Red Sea, are still known to the Arabs, though their application has been but imperfectly recorded and preserved. 'O virgin, daughter of Egypt,' says Jeremiah,[3] 'in vain shalt thou use many medicines, for thou shalt not be cured.' Homer, in the Odyssey,[4] describes the many valuable medicines given by Polydamna, the wife of Thonis, to Helen, while in Egypt, 'a country whose fertile soil produces an infinity of drugs, some salutary and some pernicious, where each physician possesses knowledge above all other men;' and Pliny makes frequent mention of the productions of that country, and their use in medicine.

He also notices the physicians of Egypt;[5] and as if their number[6] was indicative of the many maladies to which the inhabitants were subject, he observes that it was a country productive of numerous diseases. In this, however, he does not agree with Herodotus,[7] who affirms that, 'after the Libyans, there are no people so healthy as the Egyptians, which may be attributed to the invariable nature of the seasons in their country.'[8]

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[1] Diod. i. 82.
[2] Herodot. ii. 77.
[3] Jerem. lxvi. 11.
[4] Homer, Od. Δ, 229.
[5] Plin. xxvi. 1.
[6] Herodotus says, 'Every place is full of doctors,' in Egypt (ii. 84).
[7] Herodot. i. 77.
[8] The science of medicine was one of the earliest discoveries of Egypt. Athothes, the successor of Menes of the 1st Dynasty, is said to have written on the subject, and five papyri on the subject have survived. They are of the period of the 18th and 19th dynasties. One known as the Papyrus Ebers, from its discoverer, is attributed to the age of Kherpheres or Bikheres. The second, that of Berlin, found in the reign of Usaphais of the 1st Dynasty, was completed by Senet or Sethenes of the second line. The third, that of the British Museum, contains a receipt said to have been mysteriously discovered in the reign of Cheops of the 4th Dynasty. A fourth, of Leyden, as well as another in the possession of Mr. Edwin Smith, is not assigned to any age. Their anatomical doctrine was erroneous, and referred the action of the blood and the nervous power to thirty-two vessels in the head. The maladies of which they treat are various, and amongst others obstetric cases, and the diagnosis is by no means wrong. The curatives in use were ointments, drinks, plasters, fumigations, and clysters, and the drugs employed were taken from vegetables, minerals, and

In Pliny's time the introduction of luxurious habits and excess had probably wrought a change in the people; and to the same cause may be attributed the numerous complaints among the Romans, 'unknown to their fathers and ancestors.'[1]

The same author tells us that the Egyptians examined the bodies after death, to ascertain the nature of the diseases of which they had died;[2] and we can readily believe that a people so far advanced in civilisation and the principles of medicine as to assign each physician his peculiar branch, would have resorted to this effectual method of acquiring knowledge and experience for the benefit of the community.

It is evident that the medical skill of the Egyptians was well known even in foreign and distant countries; and we learn from Herodotus,[3] that Cyrus and Darius both sent to Egypt for medical men.

Diodorus tells us[4] that dreams were regarded in Egypt with religious reverence, and the prayers of the devout were often rewarded by the gods with an indication of the remedies their sufferings required; but this and magic[5] were only a last resource when the skill of the physician had been baffled, and all hopes of their recovery were lost; and a similar superstitious feeling induced them to offer exvotos in their temples for the same purpose.[6] [Origen says, when any part of the body was affected by disease, they invoked the demon to whom it was supposed to belong to obtain a cure.—G. W.]

They consisted of various kinds. Some persons promised a certain sum for the maintenance of the sacred animals belonging to the deity whose interposition they solicited; which, in the case of children, was decided by weighing a certain portion of the hair of their head, 'either all, or half, or a third,'[7] shaved

animals. Those for each draught were mixed together, pounded, boiled, and strained through linen. Pure water was used to combine them generally, but beer, wine, oil, and milk were also employed. The draughts were sweetened with honey and taken hot morning and evening. Many maladies were attributed to the possession of an evil spirit, who was exorcised by the physician. The doctors belonged to the college of *hierogrammateis*, or sacred scribes, as appears by one of that order being sent to cure the Princess of Bakhtan in the reign of Rameses XII. Altogether medicine amongst the Egyptians was pure empiricism, and anatomy not understood, notwithstanding the constant dissection practised for the purposes of embalming. (Maspero, 'Histoire ancienne,' p. 81. Pierret, 'Dict. d'Ant. Égypt.,' p. 329, where the various sources of information will be found.)—S. B.

[1] Plin. xxvi. 1. [2] Ibid. xix. 5.

[3] Herodot. iii. 1 and 132.

[4] Diodorus' account of learning remedies from dreams is not quite consistent with the positive observations they took so much care to make. The advocates for animal magnetism may perhaps see it in this passage of the historian. (Diodor. i. 25.)

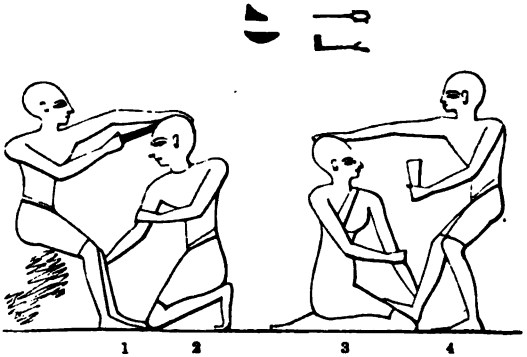
[5] Wisdom of Solomon, xvii. 8.

[6] [Clemens, apud Origen, lib. viii. p. 41, edit. Cantab.—G. W.]

[7] Herodot. ii. 65.

expressly for the purpose; and as soon as the cure had been effected, they accomplished their vow by giving an equal weight of silver to the curators.

These persons occasionally visited different parts of the country, carrying with them the banners of their respective deities; and the credulity of the peasants being frequently induced to solicit their aid, and to barter the doubtful assistance of the god for the real rewards lavished on his artful servants, much money was collected by them. And so profitable was it, that neither the change of religion, nor the simplicity of Islám, have been able to discard the custom; and the guardians of the sheikh's tombs, in like manner, send their emissaries with flags and drums to different parts of the country to levy contributions from the credulous in return for the promised assistance of their *wellee*, or patron saint.

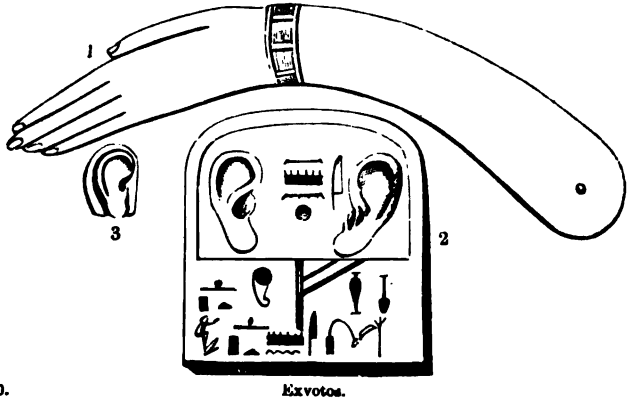


No. 459. Barbers. Above, *haq*, 'to shave.' *Beni-Hassan.*

After the cure was effected, they frequently suspended a model of the restored part in the temple of the god whose interposition they had invoked; precisely in the same manner as in the sheikhs' tombs of modern Egypt, and in the Roman Catholic chapels of Italy and other countries, consecrated to the Virgin or to a saint; and ears, eyes, distorted arms, and other members, were dedicated as memorials of their gratitude and superstition.

Sometimes travellers who happened to pass by a temple inscribed a votive sentence on the walls to indicate their respect for the deity, and solicit his protection during their journey; the complete formula of which contained the adoration (*proskunéma*) of the writer, with the assurance that he had been mindful of his wife, his family, and his friends; and the reader of the inscription was sometimes included in a share of the bless-

ings it solicited. The date of the king's reign, and the day of the month, were also added, with the profession and parentage of the writer. The complete formula of the *proskunéma* was as follows: 'The adoration of Caius Capitolinus, son of Flavius Julius, of the fifth troop of Theban horse, to the goddess Isis, with ten thousand names. And I have been mindful of (or have made an adoration for) all those who love me, and my consort, and children, and all my household, and for him who reads this. In the year 12 of the Emperor Tiberius Cæsar, the 15th of Paüni.'



No. 460. Exvotos.

1. Ivory hand, supposed castanet, British Museum. 2. Stone tablet, dedicated to Amen-ra, for the recovery of a complaint in the ear, for a scribe named Amenhetp (Ameuophis): found at Thebes. 3. An ear of terra-cotta in my possession, from Thebes.

The Egyptians, according to Pliny,[1] claimed the honour of having invented the art of curing diseases. Indeed the study of medicine and surgery appears to have commenced at a very early period in Egypt, since Athothes, the second king of the country, is stated to have written upon the subject of anatomy, and the schools of Alexandria[2] continued till a late period to enjoy the reputation and display the skill they had inherited from their predecessors. Hermes[3] was said to have written six books on medicine, the first of which related to anatomy;[4] and the various recipes known to have been beneficial were recorded, with their peculiar cases, in the memoirs of physic, inscribed among the laws already alluded to, which were deposited in the principal temple of the place, as at Memphis in that of Ptah, or Vulcan.

[1] Plin. vii. 56.

[2] [Ammian. Marcellinus (i. 16) says, for a doctor to recommend his skill, it was sufficient to say that he had studied at Alexandria.—G. W.]

[3] Hermes and Athothes may have been confounded, or they may be in this instance the same person. The god Hermes, or Thoth, generally implied intellect.

[4] Clem. Alex. Strom. vi.

The embalmers were probably members of the medical profession, since the knowledge required for that purpose appears to be connected with their peculiar studies; and the Bible expressly states that 'the physicians[1] embalmed' Jacob. This part, however, belongs more properly to the funeral ceremonies of the Egyptians, into which I do not here enter; reserving that portion of my subject to future chapters, whose less contracted dimensions will enable me to introduce the illustrations connected with it on a more suitable scale: I have also taken advantage of the opportunity there afforded of entering more fully into the mythology of the Egyptians, and the ceremonies connected with their religion.[2]

[1] Gen. l. 2.

[2] See vol. iii.

No. 461. Sarcophagus with the goddess Nut on the breast.

No. 462. TOPOGRAPHICAL PLAN OF THE PYRAMIDS OF GIZEH.

A. Entrance to the Great Pyramid.
B. Entrance to the Second Pyramid.
C C. Long pits, by some supposed for mixing the mortar.
D. Pyramid of the daughter of Cheops (Herodotus, ii. 126).
E. Pavement of black stones (basaltic trap), the same as found on the causeways of the pyramids of Saqqára.
F. Remains of masonry.
G. Round enclosures of crude brick, of Arab date, at N.E. angle of this pyramid.
H. Tombs of individuals, with deep pits.
I. The tomb of numbers.
K. Two inclined passages, meeting underground, apparently once belonging to a small pyramid that stood over them.
L L. The rock is here cut to a level surface.
M. A narrow and shallow trench cut in the rock.
N. A square space cut in the rock, probably to receive and support the corner stone of the casing of the pyramid.
P. Here stood a tomb which has received the title of the Temple of Osiris.
Q. Tomb of trades, to west of tombs H.
R. A pit cased with stone, of modern date.
S. The Third Pyramid.
T. Three small pyramids.
U, V. Ruined buildings, whose original use it is now difficult to determine.
W W W. Fragments of stone, arranged in the manner of a wall.
X. A few palms and sycamores, with a well.
Y. Southern stone causeway.
Z. Northern causeway, repaired by the Caliphs.
a. Tombs cut in the rock.
b. Masonry.
c. Black stones.
d, *d*. Tombs cut in the rock.
e. The sphinx.
f. Pits, probably unopened.
g. Pits.
h. Stone ruin on a rock.
i. Doorway, or passage, through the causeway.
k. A grotto in the rock.
l. Inclined causeway, part of Y.
m, *n*. Tombs in the rock.
o. Some hieroglyphics on the rock.
p. Tombs cut in the scarp of the rock.
q. Stone wall.
r. Steps cut in the rock, near the N.W. angle of the Great Pyramid.
s, *t*. Magnetic south, in 1832 and 1836, corresponding to M N; T N being 'true north.'
The names 1 and 2 are of king Ergamenes, mentioned by Diodorus (lib. iii. s. 6), and another Ethiopian monarch, found at Dakkeh.

VIGNETTE K.—Machine used as a harrow after the land is ploughed. Heliopolis—Cairo in the distance.

CHAPTER XI.

Richness of Egypt—An agricultural and manufacturing Country—Origin of Mensuration and Geometry—Astronomical Calculations connected with the Rise of the Nile—Year of 365 Days—Sothic Year of 365¼ Days—Flocks—Sheep kept for their Wool—Former Advantages of Egypt in Manufactures—Abundance of Produce—Land Measures—Weights—Irrigation—The Inundation—Mode of cultivating the Land—Plough—Hoe—Swine and Cattle to tread in the Seed—Sowing—Soil of Egypt—The Nile, its Branches—Dressing of Lands—Different Crops—Cultivation of Wheat, gathering the Corn, and threshing—Inundation—Different Levels of Egypt—Edge of Desert cultivated—Harvest Home and other Festivals of the Peasants—Care of Animals—Veterinary Art—Eggs hatched by artificial Means.

IN a country like Egypt, whose principal riches consist in the fruitfulness of its soil, it is reasonable to suppose that agriculture was always one of the principal cares of the inhabitants, and a subject to which their attention was directed at the earliest period of their existence as a nation.

The richness of the valley of the Nile was proverbial; and this had no doubt induced the conquering tribe, who, as already observed, were the ancestors of the afterwards powerful Egyptians, to migrate from Asia and settle in that fertile country; and the same continued to be an inducement to other people in later times to invade and possess themselves of Egypt. The pastor race, called Hyksos or Shepherd Kings, appear to have been the first to follow the example of the early Asiatic invaders; and though the period and history of their conquest are involved in obscurity, it is evident that they entered Egypt from the side of Syria, and that they obtained for some years a firm footing in the country, possessing themselves of Lower Egypt, with a portion of the Thebaïd, and perhaps advancing to Thebes itself. I at first

supposed them to have come from Assyria; but on more mature consideration have been disposed, as already stated, to consider them a Scythian tribe,[1] whose nomad habits accord more satisfactorily with the character of a pastoral race, and whose frequent inroads at early periods into other countries show the power they possessed as well as their love of invasion, which were continued till a late time, and afterwards imitated by their successors, the Tartar hordes of Central Asia. This inroad of the Shepherds was followed, after a long interval, by the successive occupations of Egypt by the Persians, the Macedonians, and the Romans; and Egypt, after having passed under the dominion of the Arabs and at length of the Turks, still continues, in spite even of the injuries it has received from the misrule of these last, to be coveted for the richness and capabilities of its productive soil.

It is an old and true remark, that the inhabitants of a rich country are ever exposed to the aggressions of powerful neighbours whose soil is less productive, whilst the destiny of these last is rather to be conquerors than conquered; and this has been fully proved by experience and the history of the world. We are therefore more surprised at the great duration of the power of Egypt, which, to calculate only from the reign of Usertesen to the Persian conquest, continued without interruption through a period of twelve hundred years. So remarkable a circumstance can only be attributed to the rigid discipline of the Egyptian constitution and the stern regulations of the priesthood, which, by scrupulously watching over the actions of the monarch and obliging him to conform to certain rules established for his conduct both in public and in private, prevented the demoralising effect of luxurious habits, with the baneful example of a corrupt court, and, by a similar attention to the conduct of all classes, exercised a salutary influence over the whole community. And the successful promotion of industry, the skill of their artisans, and the efficiency of their army, were owing to the same well-ordered system.

Particular attention was always given to the agricultural classes; grain was looked upon as the staple commodity of the Egyptian market, and the memorial of this was maintained to a late time, after Egypt had attained an unrivalled celebrity as a

[1] Recent discoveries show them to have been of Semitic and not Tatar origin. Pleyte, 'Culte du Dieu Set.'—S. B.

manufacturing country, in some of the religious ceremonies, and, above all, at the festival of the coronation. Such, indeed, was the respect paid in Egypt to the pursuits of husbandry, that the soldiers, a class inferior only to the priesthood, and from which alone the king, when not of the priestly order, could be chosen, were permitted and even encouraged to occupy their leisure time in the tillage of the lands allotted them by Government; and every priest and noble of the country was expected to use his utmost endeavours to encourage the industry of the agricultural population.

Of the three states of society—the hunter, the shepherd, and the agriculturist—the last, as has been already observed, is the most capable of arriving at and advancing in civilisation; and those countries where agriculture is successfully encouraged speedily rise to opulence and power. To this was Egypt indebted for its immense resources, which, even from so confined a valley, maintained a population of 7,000,000, supplied several neighbouring countries with corn, supported an army of 410,000 men besides auxiliaries, extended its conquests into the heart of Asia, and exercised for ages great moral influence throughout a large portion of Asia and Africa.

In the infancy of her existence as a nation, Egypt was contented with the pursuits of agriculture; but in process of time the advancement of civilisation and refinement led to numerous inventions, and to improvements in the ordinary necessaries of life, and she became at length the first of nations in manufactures, and famed amongst foreigners for the excellence of her fine linen, her cotton and woollen stuffs, cabinet work, porcelain, glass, and numerous branches of industry. That Egypt should be more known abroad for her manufactures than for her agricultural skill might be reasonably expected, in consequence of the exportation of those commodities in which she excelled, and the ignorance of foreigners respecting the internal condition of a country from which they were excluded by the jealousy of the natives; though, judging from the scanty information imparted to us by the Greeks, who in later times had opportunities of examining the valley of the Nile, it appears that we have as much reason to blame the indifference of strangers who visited the country, as the exclusiveness of the Egyptians. The Greeks, however, confessed the early advancement of the Egyptians in agricultural as well as mechanical pursuits; and Diodorus is evidently of opinion that, with colonisation, the knowledge of

husbandry and various institutions were carried from Egypt into Greece.[1]

There are fortunately other sources of information, which explain their mode of tilling the land, collecting the harvest, and various peculiarities of their agriculture; and, independent of what may be gleaned from Herodotus and Diodorus, numerous agricultural scenes, in the tombs of Thebes and Lower Egypt, give full and amusing representations of the process of ploughing, hoeing, sowing, reaping, threshing, winnowing, and housing the grain. In considering the state of agriculture in Egypt, we do not confine its importance to the direct and tangible benefits it annually conferred upon the people, by the improved condition of the productions of the soil; the influence it had on the manners and scientific acquirements of the people is no less obvious, and worthy our contemplation: and to the peculiar nature of the Nile, and the effects of its inundation, has been reasonably attributed the early advancement of the Egyptians in geometry and mensuration. Herodotus, Plato, Diodorus,[2] Strabo,[3] Clemens of Alexandria,[4] Iamblichus, and others, ascribe the origin of geometry to changes which annually took place from the inundation, and to the consequent necessity of adjusting the claims of each person respecting the limits of the lands; and, though Herodotus may be wrong in limiting the commencement of those observations to the reign of Sesostris, his remark tends to the same point, and confirms the general opinion that this science had its origin in Egypt.

It is reasonable to suppose, that as the inundation subsided, much litigation sometimes occurred between neighbours respecting the limits of their unenclosed fields; and the fall of a portion of the bank, carried away by the stream during the rise of the Nile, frequently made great alterations in the extent of land near the river-side. We therefore readily perceive the necessity of determining the quantity which belonged to each individual, whether to settle disputes with a neighbour, or to ascertain the tax due to Government.[5] But it is difficult to fix the period when the science of mensuration commenced: if we have ample proofs of its being known in the time of Joseph, this does not carry us far back into the ancient history of Egypt; and there is evidence of geometry and mathematics having already

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[1] Diodor. i. s. 20, 23, 28, 96, &c., and v. 58. [2] Ibid. i. 81.
[3] Strabo, xvii. p. 542. [4] Clem. Strom. i. p. 20. [5] Herodot. ii. 109.

made the same progress at the earliest period of which any monuments remain, as in the later era of the patriarch, or of the great Rameses.

Besides the mere measurement of superficial areas, it was of paramount importance to agriculture, and to the interests of the peasant, to distribute the benefits of the inundation in due proportion to each individual, that the lands which were low might not enjoy the exclusive advantages of the fertilising water, by constantly draining it from those of a higher level. For this purpose, the necessity of ascertaining the various elevations of the country, and of constructing accurately-levelled canals and dykes, obviously occurred to them; and if it be true that Menes, their first king, turned the course of the Nile into a new channel he had made for it, we have a proof of their having, long before his time, arrived at considerable knowledge in this branch of science, since so great an undertaking could only have been the result of long experience.

These dykes were succeeded or accompanied by the invention of sluices, and all the mechanism appertaining to them. The regulation of the supply of water admitted into plains of various levels, the report of the exact quantity of land irrigated, the depth of the water and the time it continued upon the surface, which determined the proportionate payment of the taxes, required much scientific skill; and the prices of provisions for the ensuing year were already ascertained by the unerring prognostics of the existing inundations. This naturally led to minute observations respecting the increase of the Nile during the inundation: Nilometers, for measuring its gradual rise or fall, were constructed in various parts of Egypt, and particular persons were appointed to observe each daily change, and to proclaim the favourable or unfavourable state of this important phenomenon. On these reports depended the time chosen for opening the canals, whose mouths were closed until the river rose to a fixed height,[1] upon which occasion grand festivities were proclaimed throughout the country, in order that every person might show his sense of the great benefit vouchsafed by the Gods to the land of Egypt. The introduction of the waters of the Nile into the interior, by means of these canals, was allegorically construed into the union of Osiris and Isis; the instant of cutting away the dam of earth which separated the bed of the

[1] Pliny, lib. xviii. 18. The canals are now generally cut about the 10th of August.

canal from the Nile, was looked forward to with the utmost anxiety; and it is reasonable to suppose that many omens were consulted in order to ascertain the auspicious moment for this important ceremony.

Superstition added greatly to the zeal of a credulous people. The deity or presiding genius of the river was propitiated by suitable oblations, both during the inundation and about the period when it was expected; and Seneca[1] tells us, that on a particular *fête* the priests threw presents and offerings of gold into the river near Philæ, at a place called the Veins of the Nile, where they first perceived the rise of the inundation. Indeed, we may reasonably suppose that the grand and wonderful spectacle of the inundation excited in them feelings of the deepest awe for the divine power to which they were indebted for so great a blessing: and a plentiful supply of water was supposed to be the result of the favour of the gods, as a deficiency was attributed to their displeasure, punishing the sins of an offending people.

On the inundation depended all the hopes of the peasant; it affected the revenue of the Government, both by its influence on the scale of taxation, and by the greater or less profits on the exportation of grain and other produce; and it involved the comfort of all classes. For in Upper Egypt no rain fell to irrigate the land; it was a country, as ancient writers[2] state, which did not look for showers to advance its crops; and if, as Proclus[3] says, these fell in Lower Egypt, they were confined to that district, and heavy rain was a prodigy in the Thebaïd. There is, however, evidence that heavy rain did occasionally fall in the vicinity of Thebes, from the appearance of the deep ravines worn by water in the hills, about the tombs of the Kings, though probably, as now, after intervals of fifteen or twenty years; and it may be said from modern experience, that slight showers fall there about five or six times a year, in Lower Egypt much more frequently, and at Alexandria almost as often as in the South of Europe. The result of a favourable inundation was not confined to tangible benefits; it had the greatest effect on the mind of every Egyptian by long anticipation; the happiness arising from it, as the regrets on the appearance of a scanty supply of water, being far more sensibly felt than in countries

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[1] Seneca, Nat. Quæst. iv. 2, p. 886. [2] Mela, i. c. 9.
[3] Proclus, in Tim. lib. i.

which depend on rain for their harvest, where future prospects not being so soon foreseen, hope continues longer; the Egyptian, on the other hand, being able to form a just estimate of his crops even before the seed is sown, or the land prepared for its reception.[1]

Other remarkable effects may likewise be partially attributed to the interest excited by the expectation of the rising Nile; and it is probable that the accurate observations required for fixing the seasons, and the period of the annual return of the inundation, which was found to coincide with the heliacal rising of Sothis or the Dog-star, contributed greatly to the early study of astronomy in the valley of the Nile. The precise time when these and other calculations were first made by the Egyptians, it is impossible now to determine; but from the height of the inundation being already recorded in the reign of Mœris,[2] we may infer that constant observations had been made, and Nilometers constructed, even before that early period; and astronomy,[3] geometry, and other sciences are said to have been known in Egypt in the time of the hierarchy which preceded the accession of their first king, Menes.

We cannot, however, from the authority of Diodorus and Clemens of Alexandria, venture to assert that the books of Hermes which contained the science and philosophy of Egypt were all composed before the reign of Menes; the original work, by whomsoever it was composed, was probably very limited and imperfect, and the famous books of Hermes were doubtless compiled at different periods, in the same manner as the Jewish collection of poems received under the name of David's Psalms, though some were composed after the Babylonish captivity. Nor was Hermes, or Mercury, as I have elsewhere observed, a real personage, but a deified form of the divine intellect, which being imparted to man had enabled him to produce this effort of genius; and the only argument to be adduced respecting the high antiquity of any portion of this work is the tradition of the people, supported by the positive proof of the great mathematical skill of the Egyptians in the time of Menes, by the change he made in the course of the Nile. It may also be inferred, from their great advancement in arts and sciences at this early period, that many ages of civilisation had preceded the accession of their first monarch.

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[1] Seneca, Quæst. Nat. iv. 2. [2] Herodot. ii. 13.
[3] Diodor. i. 16, and Clem. Alex. Strom. 6.

At all events, we may conclude that to agriculture and the peculiar nature of the river, the accurate method adopted by the Egyptians in the regulation of their year is to be attributed; that by the return of the seasons, so decidedly marked in Egypt, they were taught to correct those inaccuracies to which an approximate calculation was at first subject; and that the calendar, no longer suffered to depend on the vague length of a solar revolution, was thus annually brought round to a fixed period. It is highly probable that the Egyptians, in their infancy as a nation, divided their year into twelve lunar months;[1] the twenty-eight years of Osiris' reign being derived, as Plutarch observes,[2] from the number of days the moon takes to perform her course round the earth; and it is worthy of remark that the hieroglyphic signifying 'month' was represented by the crescent of the moon,[3] as is abundantly proved from the sculptures and the authority of Horapollo. From this we also derive another very important conclusion; that the use of hieroglyphics was of a far more remote date than is generally supposed, since they existed previously to the adoption of solar months. The substitution of solar for lunar months was the earliest change in the Egyptian year. It was then made to consist of twelve months of thirty days each, making a total of 360 days:[4] but as it was soon discovered that the seasons were disturbed, and no longer corresponded to the same months, five additional days were introduced at the end of the last month, Mesoré,[5] in order to remedy the previous defect in the calendar, and to insure the returns of the seasons to fixed periods.

The twelve months were Thoth, Paopi, Athor, Choeak, Tobi,

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[1] The moon's revolution round the earth is evidently the origin of this division of the year into months. The German *Monat* signifies both 'moon' and 'month,' from which our own words are derived; the Greek *mén* and *mênê*, 'a month' and 'the moon,' the Latin *mensis*, and the Sanscrit *más*, 'month,' *más* or *másа*, 'moon,' are from the same origin. (Plut. Tim. p. 498; trans. Taylor.)

[2] Plut. de Isid. s. 42.

[3] There is also an evident cycle of thirty years, called *Set*, the *Triakonteris* of the Greeks, which appears as early as Phrops, of the 6th Dynasty, and which continued till the Ptolemies. A year called the *χet* of Phiops is also recorded on the monuments, but its meaning is difficult. According to Brugsch, the *set* meant the cycle of four years, or *tetraeris*; but the inscriptions of the time of Rameses II. incline to a *triakonteris*. The divisions of time were *han han*, 'cycles,' perhaps Sothic, *set*, *triakonteres*; *renpa*, 'years;' *aah*, 'moons,' 'months;' *heru*, 'days;' *unnu*, 'hours;' *at*, 'subdivision of hour;' *ha*, 'minutes;' *ân*, 'winks' or 'seconds.'—S. B.

[4] The 360 cups, filled daily with milk at the tomb of Osiris at Philæ, appear to show that the year once consisted of 360 days. (Diodor. i. 22.)

[5] The day was divided into twelve and the night into as many hours. The first hour of the day commenced with the dawn, so that the hours could not originally have been of equal length; at the Ptolemaic period the hour was subdivided into minutes and moments. (Lepsius, Einleit.)

Mechir, Phamenoth, Pharmuthi, Pachons, Paoni, Epep, Mesoré: and the year being divided into three seasons,[1] each period comprised four of these months. The 1st of Thoth, in time of Julius Cæsar, fell on the 29th of August; and Mesoré, the last month, began on the 25th of July.[2] I have introduced the modern names given them by the Copts,[3] who still use them in preference to the lunar months of the Arabs; and, indeed, the Arabs themselves are frequently guided by the Coptic months in matters relating to agriculture, particularly in Upper Egypt.

A people who gave any attention to subjects so important to their agricultural pursuits, could not long remain ignorant of the deficiency which even the intercalation of the five days left in the adjustment of the calendar; and though it required a period of 1460 years for the seasons to recede through all the twelve months, and to prove by the deficiency of a whole year the imperfection of this system, yet it would be obvious to them, in the lapse of a very few years, that a perceptible alteration had taken place in the relative positions of the seasons; and the most careless observation would show, that in 120 years, having lost a whole month, or thirty days, the rise of the Nile, the time of sowing and reaping, and all the periodical occupations of the peasant, no longer coincided with the same month. They therefore added a quarter day to remedy this defect, by making every fourth year to consist of 366 days; which, though still subject to a slight error, was a sufficiently accurate approximation; and, indeed, some modern astronomers are of opinion that, instead of exceeding the solar year, the length of the sidereal, computed from one heliacal rising of the Dog-star to another, accorded

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[1] Each month was under the protection of a deity; these vary in type, according to the representations of the Memnonium, in the reign of Rameses II., and at Edfu both the names are the same.

1. Thoth—goddess Texi.
2. Paophi—Ptah.
3. Athyr—Hathor.
4. Choeak—Sexet, or Kahak.
5. Tybi—Amsi, or Khem.
6. Mecheir—Rex-ur (Anubis).
7. Phamenoth—Asxnet (Apheru).
8. Pharmuthi—Rannu (Harvest).
9. Pachons—Chons.
10. Payni—Har xont xrutf.
11. Epiphi—Apet.
12. Mesori—Harmachis.

Epagomenæ, or Intercalary Days, viz.:

1. Birth of Osiris.
2. Birth of Horus.
3. Birth of Set.
4. Birth of Isis.
5. Birth of Nephthys.

(Brugsch, 'Mat. du Cal.,' pp. 53–55.)—S. B.

[2] Each day of the month was sacred to a deity, and had a festival, by which it could be cited instead of its numerical order; but it is probable that each month had a separate series or nomenclature. These were the eponymous dates: thus, the 1st day was called the festival of the Neomenia; the 26th the festival of the manifestation of Khem or Amsi; the 30th the festival of the locust. (Brugsch, *ut suprà.*)—S. B.

[3] See pp. 373–4.

exactly in that latitude (in consequence of a certain concurrence in the positions of the heavenly bodies) with the calculation of the Egyptians.[1] 'This sidereal or Sothic year,' says Censorinus, 'the Greeks term *cynikon*, the Latins *canicularis*, because its commencement is taken from the rising of the Dog-star on the first day of the month called by the Egyptians Thoth;'[2] which, while it accords with the observations of Porphyry, that 'the first day of the month is fixed in Egypt by the rising of Sothis,' fully confutes the opinion of those who suppose that the name Thoth was applied to the first day alone, and not to the month itself. That the five days,[3] called of the Epact, were added at a most remote period, may readily be credited; and so convinced were the Egyptians of this, that they referred it to the fabulous times of their history, wrapping it up in the guise of allegory; and it is highly probable that the intercalation of the quarter day, or one day in four years, was also of very early date.

On this subject much controversy has been expended, without, as usual on such occasions, arriving at any satisfactory result; many doubting that it was known to them before the late time of the Roman conquest, some confining it to the period of the Persian conquest, and others assigning it to the year 1322 before our era, which was the beginning of a Sothic period, when the solar year of 365 days coincided with the Sothic of 365¼ days, or which, in other words, intercalated an additional day every fourth year. For the Egyptians, finding by observation that 1460 Sothic were equal to 1461 solar years, the seasons having in that time passed through every part of the year, and returned again to the same point, established this as a standard for adjusting their calendar, under the name of the Sothic period; and though for ordinary purposes, as the dates of their kings and other events, they continued to use the solar or vague year of 365 days, every calculation could thus be corrected, by comparing the time of this last with that of the Sothic or sidereal year. The sacred was the same as the solar or vague year; and

[1] Mure, 'Calendar and Zodiac of Ancient Egypt,' p. 8.

[2] Censorin. de Die Nat. c. 13. Porphyry and Solinus say the Egyptians considered this period to commence at the beginning of the world.

[3] The five days called *hru*, 'additional,' or by the Greeks *Epagomenai*, were introduced into the calendar at the time of the 12th Dynasty, previous to which they are not mentioned on the monuments. The solar year of 365 was in use in the days of Euergetes II., B.C. 208, and attempted to be reformed on account of the confusion it had produced in the calendar. (Lepsius, 'Das Dekret von Canopus,' fol. Berl. 1770.) —S. B.

an ancient author, cited by Jablonski,[1] asserts that the Egyptian kings took an oath in the adytum that they would not intercalate any month or day, but that the sacred year of 365 days should remain as instituted in ancient times. If this be true, it argues that intercalation of the additional day was coeval with the era of the Pharaohs, since the prohibition could only have been directed against this innovation. But without pretending to give a decided opinion respecting the period of its first introduction, I may observe that the positive testimony of Diodorus[2] shows it to have been in use before the Roman conquest, that historian having lived, and, as he says, 'visited Egypt, under Ptolemy Neus, Dionysus;'[3] and the ignorance of Herodotus on the subject, who speaks[4] of the Egyptian year of 365 days having the effect of keeping the seasons in their proper places, is readily accounted for by the fact of the Egyptians only using this solar year for their ordinary calculations, the knowledge of the sidereal one being confined to the priests. For it is more reasonable to suppose the Father of History to be mistaken in this, as he is on so many points relating to Egypt, than that so important a discovery, which had escaped them whilst their astronomical skill was at its zenith, during the flourishing period of the Pharaohs, should be made at a time when 'the wisdom' of Egypt had already declined, and, above all, during the confusion consequent upon the occupation of the country by the Persians. Nor does the circumstance of the Hebrews neglecting to adopt the Sothic year argue that it was introduced subsequently to the Exodus and the age of Moses: the Arabs, who conquered Egypt long after its universal adoption, persisted and still persist in the use of their imperfect lunar months; as some Europeans are indifferent to the introduction of the Gregorian calendar; but both these are not the less known, because unadopted, and no argument can fairly be derived from similar omissions. I do not, however, assert that the Sothic year was invented before the time of Moses, and it will probably long remain uncertain when the Egyptians first introduced so important an innovation.

[No point has been more disputed than the question of the existence of a fixed year amongst the ancient Egyptians. It is clear that after the Alexandrian reformation of the calendar a year, called 'the year according to the ancients,' corresponding to

[1] Jablonski, Panth. Egypt. lib. iv. c. 2, p. 210.
[2] Diodor. i. 50.
[3] Ibid. i. 44.
[4] Herodot. ii. 4.

the vague year, was also in use. That the vague year of 365 days was in common employment under the Ptolemies appears from the Decree of Canopus, which recites the fact of the disturbance of the calendar owing to the festivals being celebrated at inappropriate times, and the attempt to reform it by the introduction of a sixth intercalary day at the end of every fourth year. Philologically, it has been attempted to be proved that there were two years, from such expressions as 'the first year,' *ap tep*, or *renpa*; 'the opening of the year,' *ap renpa*, and *un renpa*; and 'the ending year,' *arg renpa*: but doubt is thrown upon the philological position by the consideration that *ap renpa* may mean 'yearly,' as *ap abut* means 'monthly' in the Rosetta inscription. The older calendars, prior to the 14th Dynasty, give the following series of festivals as running through the year:—1. The commencement of the year. 2. The festival of Thoth. 3. New year. 4. Of the Uata. 5. Of Sostaris. 6. Great and little heat or burning. 7. Holocaust. 8. Appearance or showing of the god Khem or Asi. 9. Of *Sat*. 10. First of month. 11. Fifteenth of month. 12. All other festivals. Some of these were movable festivals; and under the 11th and 12th Dynasties, the festivals of Osiris, the five intercalary days, or Epagomenæ, and of the appearance of Sothis, were mentioned in the calendar for the first time, as also those of the Neomenia, 2nd, 6th, 10th, 15th. This would show that the introduction of the solar in place of the lunar year was not older than the 12th Dynasty, when the Sothic cycle was first instituted to correct the wandering improved year of 365 days. In the correct or normal year, the 1st of Thoth ought to correspond to the heliacal rising of Sothis or Sirius the Dog-star, and the commencement of the rise of the Nile. Such a state of the calendar is alluded to in the ceiling of the Memnonium and the walls of Medinat Habu; but it is evident from the zodiacs of the tombs of Rameses VI. and Rameses IX. that a vague year was in use even for astronomical observations, to which the calendar of Elephantine gives evidence by its recording the rise of Sothis in the reign of Thothmes III. on the 28th Epiphi instead of the 1st Thoth. Normally, the rise of Sirius, and the commencement of the Sothic year, was the 20th July, 1st of Thoth, and the fixed year ought to commence with it. There were, without doubt, many attempts to correct the vague year owing to the obvious disturbance of the phenomena, but it is very doubtful if a fixed year actually came into use till the final reformation of the calendar by Augustus, when the beginning of the year was finally fixed, in B.C. 27, to the 29th

of August, the 1st of Thoth, up to which period the vague year was in sacerdotal and secular use.[1]—S. B.]

[Though Herodotus does not call the twelve portions, into which the Egyptian year was divided, months, it is certain that the original division was taken, as among most other people, from the moon; the hieroglyphic signifying 'month' being the crescent.[2] The Egyptians had three years: one unintercalated, of 360 days; and two intercalated, respectively of 365 and 365¼ days. They were divided into three seasons ('spring, summer, and winter,'[3] according to Diodorus[4]), each composed of four months of 30 days; and in the two intercalated years five days were added at the end of the twelfth month, which completed the 365 days; the quarter day in the last of them being added every fourth year, as in our leap-year.

The three seasons were thus represented, with the four months belonging to each:—

No. 463. THE TWELVE EGYPTIAN MONTHS.

Egyp. name.	Choeak.	Athor.	Paopi.	Thoth.
Coptic name.	Keeak.	Hatoor.	Habeh.	Toot.
	27th Nov.	28th Oct.	29th Sept.	began 29th Aug. o.s.

Season of the Water Plants.

Egyp. name.	Pharmuthi.	Phamenoth.	Mechir.	Tobi.
Coptic name.	Baramoodeh.	Baramhát.	Imsheer.	Toobeh.
	27th March.	25th Feb.	26th July.	27th Dec.

Season of Ploughing.

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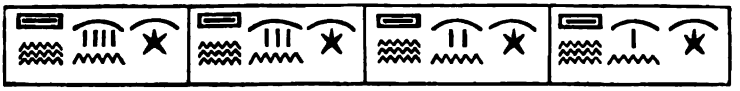
[1] Lepsius, 'Einleit.,' p. 147, and foll. Brugsch, 'Mat. du Calendrier chez les Égyptiens,' 4to, Leipzig, 1864. Le Page Renouf, Calendar of Astron. Observ. in the 'Trans. Soc. Bibl. Arch.' vol. iii. p. 400, and foll.—S. B.

[2] Although month was expressed by *aah*, 'moon,' the form *àah* *ba t*, occurs, the same as the Coptic *abōt*; in the hieroglyphics ✶ having the value of soul, *ba*, as well as star, &c. There is no proof of the simultaneous confusion of three years, although all existed necessarily.—S. B.

[3] The Egyptian seasons were *sd*, the commencement or inundation, certainly not the spring, as it precedes the second season; *per*, the Coptic *pro*, or winter; and the third season, *sém*, or summer. Although reversed, summer, winter, spring, would coincide with the idea of spring, the real difficulty being that summer must have ended before the 29th July in the normal year. (Brugsch, 'Mat. du Cal.,' p. 34.)—S. B.

[4] Diod. i. 11.



Egyp. name.	Mesoré.	Epep.	Paoni.	Pachons.
Coptic name.	Mesoree.	Ebib.	Baooneh.	Beabens.
	25th July.	25th June.	26th May.	26th April.

Season of the Waters.

The first season began with the month Thoth (the first day of which, in the time of Augustus, B.C. 24, coincided with the 29th August, O.S.), and was composed of the four months Thoth, Paopi, Athor, Choeak; the second of Tobi, Mechir, Phamenoth, Pharmuthi; the third of Pachons, Paoni, Epep, and Mesoré; at the end of which were added the five days of the intercalated year. The names of the seasons appear to be, 1st, of the plants; 2nd, of flowering, or harvest; and 3rd, of the waters, or inundation: which originally corresponded nearly to, 1st, November, December, January and February; 2nd, March, April, May and June; 3rd, July, August, September and October. But as, in course of time, the seasons changed, and those of summer fell in winter, they found it necessary to make another correction; and for this purpose they resolved on ascertaining the period that elapsed between the return of a fixed star to the same place in the heavens, which they perceived would not be variable as were their conventional seasons. The heliacal rising of the dog-star, Sothis, was therefore the point fixed upon, and in 1460 Sothic (or 1461 of their vague) years they found that it rose again heliacally, that their seasons had returned to their original places again, and that they had lost one whole year, according to the calculation of 365 days. This showed them that the difference of a quarter of a day annually required that one day every four years should be intercalated to complete the true year; and though they had already devised other means of fixing the return of a certain period of the year, this was the first nearly accurate determination of its length. The period when they first began their observations, as well as that still more remote one when the first intercalated year of 365 days came into use, must have been long before the year 1322 B.C.; and an inscription (in the Turin Museum) of the time of Amenophis I., the second king of the 18th Dynasty, mentions the year of 365 days. Lepsius and M. de Rougé have also shown that the five days were already noticed in the 12th Dynasty, and that the rise of Sothis was celebrated at the same period. The heliacal rising of Sothis was therefore ascertained

long before the year 1322; and the reputed antiquity of the intercalary days is shown by their being ascribed, according to Strabo, to Hermes, as well as by the fable of the five sons of Seb having been born on those days; nor would the Egyptian kings have 'sworn to retain the sacred year of 365 days without intercalating any day or month,' unless the Sothic year had been already invented. Herodotus also says that they were indebted to the *stars* for their mode of adjusting the year and its seasons. But there is reason to believe that the still older year of 360 days was retained for the dates of kings' reigns; and that this unintercalated year of 360 days was the one used in their records and monumental stelæ: thus, an Apis was born in the 53rd year of Psammatichus I., the 19th Mechir, and died in the 16th year of Neco, on the 6th Paopi, aged 16 years 7 months and 17 days. Now from 19th Mechir to 6th Paopi are 210 days + 11 to the end of Mechir + 6 of Paopi = 227, or 7 months 17 days over the 16 years; without any intercalary 5 days. It is, however, *possible* that the five days were included in the last month of the year, and that it was a year of 365 days; but there is no mention of the 31st, or any other day beyond the 30th, of Mesoré.

The Sothic year of 365¼ days was called the square year, the *annus quadratus* of Pliny;[1] and the same mentioned by Diodorus,[2] Macrobius,[3] and Horapollo. The retention of the unintercalated and intercalated vague year would prevent the confusion which might have been expected from the older and later chronological memoirs having been kept in years of a different reckoning; for it was always easy to turn these last into Sothic years, when more accurate calculations were required; and this Sothic, or sidereal year, was reserved for particular occasions, as the old Coptic year is used by the modern Egyptians when they wish to fix any particular period, or to ascertain the proper season for agricultural purposes.

The Egyptians had therefore an object in retaining the vague year, in order that the festivals of the gods, in course of time, might pass through the different seasons of the year, as Geminus the Rhodian (who lived in 77 B.C.) informs us. It is also evident that without the accuracy of the Sothic year they could not, as Herodotus supposes, have fixed the exact return of the seasons.

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[1] Plin. ii. 47. [2] Diod. i. 50. [3] Macrob. i. 16.

We may conclude that the Egyptians had at first a lunar year, which being regulated by the moon, and divided into twelve moons or months, led to a month being ever after represented in hieroglyphics by a moon: but this would only have been at a most remote period, before the establishment of the Egyptian monarchy; and some might hence derive an argument in favour of the early use of hieroglyphics, and suppose that they were invented before the introduction of the solar months. In India also the lunar year was older than the solar.—G. W.]

The examination of the astronomical subjects in the Tombs of the Kings and on other monuments may perhaps some day tend to decide this question, when the complete interpretation of hieroglyphics does away with the necessity of conjecture; in the meantime, I feel less regret in abstaining from the mention of many arguments which might be adduced to maintain the antiquity of the intercalation of the quarter day, as the learned Letronne has already prepared an elaborate essay on the subject, and is supported in his opinion by the authority of a Greek papyrus in the collection of the Louvre. And whilst mentioning this, I must not omit my tribute of praise to another excellent work, in which this question is treated with great candour and learning; many valuable remarks being embodied in Mure's 'Calendar and Zodiac of Ancient Egypt.' I have also introduced some remarks on the adoption of the Sothic year, in another part of this work, extracted from a previous publication in the year 1828.

The pursuits of agriculture did not prevent the Egyptians from arriving at a remarkable pre-eminence as a manufacturing nation; nor did they tend to discourage the skill of the grazier and the shepherd; though the office of these last was looked down upon with contempt, and the occupation of persons engaged in manufactures and all handicraft employments was, to the soldier at least, ignoble and unmanly. Large flocks and herds always formed part of the possessions of wealthy individuals; the breed of horses was a principal care of the grazier, and, besides those required for the army and private use, many were sold to foreign traders who visited the country;[1] and the rearing of so many sheep in the Thebaïd, where mutton was unlawful food,[2] proves the object to have been to supply the wool-market

[1] 1 Kings x. 28, 29.
[2] Strabo (lib. xvii. p. 552) says sheep were only sacrificed in the Nitriotic nome.

with good fleeces, two of which, owing to the attention they paid to its food, were annually supplied by each animal. That the Egyptians should successfully unite the advantages of an agricultural and a manufacturing country is not surprising, when we consider that in those early times the competition of other manufacturing countries did not interfere with their market; and though Tyre and Sidon excelled in fine linen and other productions of the loom, many branches of industry brought exclusive advantages to the Egyptian workman. Even in the flourishing days of the Phœnicians, Egypt exported linen to other countries, and she probably enjoyed at all times an entire monoply in this, and every article she manufactured, with the caravans of the interior of Africa.

Now, indeed, the case is widely different. The population of Egypt is so reduced as not to suffice for the culture of the lands; an overgrown military force has drained the country of able-bodied men, who ought to be employed in promoting the wealth of the community, by increasing the produce of the soil; and a number of hands are continually withdrawn from the fields to advance manufactures, which, without benefiting the people, are inferior (especially for exportation) to those of other countries. Add to this the great cost for machinery, which is quickly injured by the quantity of fine sand that constantly clogs the wheels and other parts, causing additional mischief from the nitre with which it is impregnated; and it must be evident that modern Egypt, with a population of not one million and a half, and with the competition of European manufacturing countries, is no longer in the same position as Egypt of the Pharaohs, with upwards of four times the population, less competition, greater variety of manufactures, and no comparative local disadvantages unexperienced by their rivals.

I have attributed the early advancement of the Egyptians in land-surveying, levelling, and various branches of geometry, to their great attention to the agricultural interests of the country; and as it is reasonable to suppose the knowledge they thus acquired led to many other important discoveries, we are not surprised to find them at a very early time well versed in numerous operations indicative of mathematical science and mechanical skill.

Of these the most remarkable instances occur in the construction of those ancient and magnificent monuments, the Pyramids of Gizeh (where the beauty of the masonry of the

interior has not been surpassed, and I may even say has not been equalled, in any succeeding age); in the transport and erection of enormous masses of granite; and in the underground chambers excavated in the solid rock at Thebes and other places; where we admire the combined skill of the architect, the surveyor, and the mason. The origin of these subterraneous works was derived from the custom of burying the bodies of the dead in places removed beyond the reach of the inundation, and not, as some have supposed, from the habit of living in caves, ascribed to the fabled Troglodytæ; and it is a remarkable fact that the excavated tombs and temples bear direct evidence of having derived their character from built monuments, in the architrave reaching from column to column, which is taken from the original *beam* supporting a roof,—a feature totally inconsistent with a simple excavated chamber.

These feelings, derived from architecture, are carried still further: we find them extended to statues, which are supported from behind by an obelisk, or a *stele;* and the figure of a king is applied to a square pillar, both in built and excavated temples.

The abundant supply of grain and other produce gave to Egypt advantages which no other country possessed.[1] Not only were her dense population supplied with a profusion of the necessaries of life, but the sale of the surplus conferred considerable benefits on the peasant, in addition to the profits which thence accrued to the State: for Egypt was a granary where, from the earliest times, all people felt sure of finding a plenteous store of corn;[2] and some idea, as I have already had occasion to observe, may be formed of the immense quantity produced there, from the circumstance of 'seven plenteous years' affording, from the superabundance of the crops, a sufficiency of corn to supply the whole population during seven years of dearth, as well as 'all countries' which sent to Egypt 'to buy' it, when Pharaoh by the advice of Joseph[3] laid up the annual surplus for that purpose.

The right of exportation, and the sale of superfluous produce to foreigners, belonged exclusively to the Government, as is

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[1] It appears, however, from the Decree of Canopus, already cited, that Egypt occasionally, in consequence of deficient Niles, was obliged to import corn for its own consumption. Even in the time of Thothmes III. corn seems to have been brought along with other things as tribute to Egypt.—S. B.

[2] Gen. xii. 10, and xlii. 2.

[3] Gen. xli. 29 *et seq.*

distinctly shown by the sales of corn to the Israelites from the royal stores, and the collection having been made by Pharaoh only; and it is probable that the landowners were in the habit of selling to Government whatever quantity remained on hand, at the approach of each successive harvest. Indeed, their frugal mode of living enabled the peasants to dispose of nearly all the wheat and barley their lands produced, and they may frequently, as at the present day, have been contented with bread made of the *doora*[1] flour; children, and even grown-up persons, according to Diodorus,[2] often living on roots and esculent herbs, as the papyrus, lotus, and others, either raw, roasted, or boiled. At all events, whatever may have been the quality of the bread they used, it is certain that the superabundance of grain was very considerable, Egypt annually producing three, and even four crops; and though the Government obtained a large profit on the exportation of corn, and the price received from foreign merchants far exceeded that paid to the peasants, still these last derived great benefit, and the money thus circulated through the country tended to improve the condition of the agricultural classes.

The Egyptian land measure was the *aroura*, which, according to Herodotus and Horapollo,[3] being a square of 100 cubits, covered an area of 10,000 cubits, and, like our acre, was solely employed for measuring land. The other measures of Egypt were the schœne, which varied from thirty and thirty-two to forty stadia, according to Pliny;[4] and the cubit, which Herodotus considers equal to that of Samos:[5] for though the stade is often used by Greek writers in giving the measurements of monuments in

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[1] The *Holcus Sorghum*.

[2] Diodor. i. 80, and also xxxiv. 43, and Herodot. ii. 92.

[3] Horapollo, Hierog. i. 5.

[4] [Plin. v. 10; xii. 14. Strabo distinctly says (xvii. p. 1140.) it was of various lengths in different parts of Egypt. Herodotus says it was equal to sixty stadia (ii. 6), and makes the length of the coast of Egypt 3600 stadia, which, at 600 feet to the stadium, would be more than 400 English miles. The real length of the coast from the Bay of Plinthiné at Taposiris, or at Plinthiné, even to the *eastern* end of the Lake Serbônis, is by the shore little more than 300 English miles. Diodorus estimates the breadth of Egypt by the coast at 2000 stadia; and Strabo gives only 1770 stadia from the Temple of Jupiter Casius at the Serbonic Lake to Pharos, which, added to 200 stadia to Taposiris, make 1970 stadia. The real distance from Casius to Pharos is about 1944 stadia, and from Pharos to Taposiris or to Plinthiné nearly 260, being a total of about 2204 stadia. Plinthiné was a town near the Lake Mareotis (Strabo, xvii. p. 1133; Ptol. iv. c. 5; Scylax. Perip. 105). From it the lake, as well as the bay, was sometimes called 'Plinthinetan.' The name 'Arapotes,' given in Plin. v. 10 to this lake, is evidently a false reading. It should be Rachotis, and applies to Alexandria. The schœne served, like the Greek stade, the Persian parasang, and the more modern mile, for measuring distance, or the extent of a country.—G. W.]

[5] Herodot. ii. 168.

Egypt, it was not really an Egyptian measure, as Herodotus plainly shows by ascribing its use to the Greeks, and the schœnus to the Egyptians.[1] They also mention the plethrum in giving the length of some buildings, as the Pyramids; but this was properly a Greek measure, doubling the Greek aroura, and containing, according to some, 10,000 square feet, or, as others suppose, 1444. When used as a measure of length, it was usually estimated at 100 feet; though, if Herodotus' measurement of the Great Pyramid be correct, it could not complete 100 of our feet, as he gives the length of each face 8 plethra. But little reliance can be placed on his measurements,[2] since in this he exceeds the true length; and to the face of the third pyramid he only allows 3 plethra, which, calculating the plethrum at 100 feet, is more than half a plethrum short of the real length—each face, according to the measurement of Colonel Howard Vyse,[3] being 354 feet.

In former times the difficulty of measuring the exterior dimensions of the pyramid was much less than at present; and owing to the mound of broken stone, earth, and sand, which has accumulated about the centre of each face, it is so difficult to ascertain their exact extent, that no two persons agree in their measurements: and all attempts to calculate the value of ancient measures from this monument are hopeless, as well from the inaccuracy and disagreement of Greek and Roman writers upon the subject, as from the variation of modern measurements. Of my own, I shall only say that the mode I adopted in measuring the face of the Great Pyramid appeared to me as little liable to error as any I could devise; which was, of ascending to the tier above the level and encumbrance of the mound of earth in the centre of the face, and measuring along that uninterrupted horizontal line, from whose end having let fall a perpendicular (easily determined by the eye) to the base, in order to ascertain the additional portion at each corner, I completed the whole measurement, by adding the bases of those two right angles. This made the total length of the present face 732 feet, agreeing to within one foot with the measurement of Mr. Lane, who gives it 733 feet; an approximation highly satisfactory

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[1] Herodot. ii. 6, 149.

[2] We may forgive Herodotus and other writers for an error in the height of the pyramid. He makes it equal to the length of the face; Strabo says, the side is a little less than the height.

[3] The importance of the discoveries made by Col. Howard Vyse at the Pyramids can only be appreciated on referring to his valuable work.

from the well-known accuracy of his observations. The total length when entire I believe to have been 755 or 766 feet, which would be exactly 440 cubits, according to the length I shall presently show to have been that of the Egyptian cubit.

I do not pretend to derive (or even to require) any authority from this monument respecting the length of the cubit. The measurements are not sufficiently accurate for this purpose, and the cubit is too small a measure to be defined by the proportionate parts of so long a line; nor are the courts of different temples suited to guide us in so delicate a calculation; and even the small dimensions of colossi may mislead, as it is not certain (and indeed there are evident proofs to the contrary) that they were measured to a decimal number of cubits. The *vocal* statue of Thebes and its companion are little more than 60 feet high (including the pedestal), which make 35 cubits; but this leads to no conclusion, because we are uncertain whether a fixed measurement was assigned to the whole statue with its pedestal, or to the figure alone, and neither this part nor the pedestal bears an exact proportion to the cubit. It is, indeed, probable that a monument of such magnitude and of such consequence as the pyramid was measured by a decimal number of cubits, and the exact length of its faces was doubtless divisible by such a number; but, as I have already stated, the accurate determination of its original dimensions is still a desideratum, and no conclusion can thence be formed of the length of the Egyptian cubit. Happily other data of a less questionable nature are left us for this purpose, and the graduated cubit in the Nilometer of Elephantine, and the wooden cubits discovered in Egypt, suffice to establish its length, without the necessity of uncertain hypotheses. Some have supposed that the Egyptian cubit varied at different periods, and that it consisted at one time of 24, at another of 32 digits; or that there were two cubits of different lengths,[1]— one of 24 digits or 6 palms, the other of 32 digits or 8 palms, employed at the same period for different purposes. Some have maintained, with M. Girard, that the cubit used in the Nilometer of Elephantine consisted of 24 digits, others that it contained 32;[2] and numerous calculations have been deduced from these conflicting opinions, respecting the real length of the cubit.

[1] The Jewish cubit was 1 ft. 8·24 in., or 1 ft. 9·888 in.
[2] Mém. de l'Acad. vol. xvi. p. 333 *et seq.*

But a few words will suffice to show the manner in which that cubit was divided, the number of its digits, and its exact length in English inches; and respecting the supposed change in the cubit used in the Nilometers of Egypt, I shall only observe, that people far more prone to innovation than the Egyptians would not readily tolerate a similar deviation from long-established custom; and it is obvious that the greatest confusion would be caused throughout the country, and that agriculture would suffer incalculable injuries, if the customary announcement of a certain number of cubits for the rise of the Nile were changed, through the introduction of a cubit of a different length. The peasant would no longer understand the quantity of water, the proportionate height of the river, or the proper time for admitting it from the canals; in short, all the system of irrigation would be deranged, and this without any result, without any advantage to compensate for this arbitrary change in the standard of measurement. Indeed, the very few alterations made by the Ptolemies, beyond the precincts of Alexandria, in the habits and customs of the Egyptians, are a strong argument against the probability of their interference in a matter of so much importance, and involving so many interests, as the change in the mode of measuring the inundation of the Nile; and the ancient wooden cubits found in Egypt are the same measure as the graduated scale at Elephantine. To these I now invite the attention of the reader.

The Nilometer in the island of Elephantine is a staircase between two walls descending to the Nile, on one of which is a succession of graduated scales containing one or two cubits, accompanied by inscriptions recording the rise of the river at various periods, during the rule of the Cæsars. Every cubit is divided into fourteen parts, each of 2 digits, giving 28 digits to the cubit; and the length of the cubit is 1 ft. $8\frac{1}{8}$ in., or 165 eighths, which is 1 ft. 8·625 in. to each cubit, and 0·736 in. to each digit. The wooden cubit, published by M. Jomard, is also divided into 28[1] parts or digits, and therefore accords, both in its division, and, as I shall show, very nearly in length, with the cubit of Elephantine. In this last we learn, from the inscriptions accompanying the scales, that the principal divisions were palms and digits; the cubit being 7 palms or 28 digits: and the former in

[1] M. Jomard represents one with twenty-nine divisions, which he computes at a total of 0·5235 millimètres.

like manner consisted of 7 palms or 28 digits.[1] The ordinary division, therefore, of the cubit was:—

THE CUBIT IN THE NILOMETER OF ELEPHANTINE.

			Feet.	Inches.
1 digit			0	0·736
4	1 palm		0	2·946
28	7	1 cubit	1	8·625

In the cubits of M. Jomard the divisions, or digits, commence on the left, with 1, 2, 3, and 4 digits or 1 palm; the latter indicated by a hand (sometimes with, sometimes without, a thumb): next to this is the whole hand, or 5 digits (with the thumb); then the fist, or, as the Arabs call it, the *kubdeh* (the hand closed, with the thumb erect), making 6 digits; after which may perhaps be traced the dichas, or 2 palms, of 8 digits; the *fitr*, or span with the forefinger and thumb; and the *shibr*, or spithamé, the entire span; the former of 11, the latter of 13 digits. But there is no indication of a foot, and the 15 last digits are solely occupied with fractional parts, beginning with a 16th and ending in ½ a digit: from which we may conclude that the smallest measurement in the Egyptian scale of length was the 16th of a digit, or the 46th of an inch.

[1] No point has been more disputed than the exact measurement of the cubit, called in Egyptian *mā*, one of the long ends of which was always bevelled. Several of these have been found made of stone, wood, and other materials. There was a royal cubit, *saten mā*, of 7 palms, *sôp*, or 28 digits, called fingers, *teb*; the whole equal to 525 millimètres, or according to Sir H. James, 20·728 inches. The ordinary cubit measured 6 palms or 24 digits, and was employed in the construction of the monuments. After the *mah nets*, lesser cubit, or as it may be read, *mah āa*, came the greater cubit; for after it the *mah* or cubit again occurs of 5 palms or 16 digits, which by some is read *keb*, or arm, supposed to be the *pygon* of the Greeks. The next subdivision was the *t'er* of 4 palms or 16 digits, and then the spithame, one the great spithame, *remen da*, or half of the royal cubit, equal to 3½ palms or 14 digits, and *remen nets*, or small spithame, equal to 12 digits. The next subdivision was the two hands, *tut sen*, of 8 digits; then the foot, *χep*, of 1½ palm or 6 digits; then the palm, *s'ap*, of 4 digits; and lastly the *teb*, finger, or digit, which was subdivided, as in modern scales for plan drawing, into an arithmetic succession from two to sixteen divisions, called *ru*. It is clear from the fact of Egyptian monuments, such as the Pyramids, not being constructed of equal length on all four sides, and the impossibility of measuring to a decimal such long sides, that no reliance can be placed on deductions of length derived from subdivisions of such incorrect and mutilated monuments, while the actual existing cubits afford better if not absolutely correct data. Each inch was dedicated to a deity, the cubits consecrated to the gods for the persons to whom they belonged, and one accompanied by the names of certain cities and distances specified. (Lepsius, 'Die alt-ägyptische Elle,' 4to, Berlin, 1865, in the 'Abhandl. d. K. Akad. d. Wissenschaften.')—S. B.

From this may be constructed the following scale and division of the Egyptian cubit:—

Parts of the Cubit.									Cubit of the Nilometer.	Cubit of Memphis according to Jomard.
									Inches English.	Inches English.
$\frac{1}{16}$ of a digit									0·04603	0·04569
16	1 digit								0·7366	0·73115
	2	1 condyle?							1·4732	1·4623
	4	2	1 palm						2·9464	2·9247
	5	-	-	1 hand					3·6830	3·6557
	6	-	-	-	1 *kubdeh*				4·4196	4·3869
	8	-	2	-	-	1 dichas, or 2 palms .			5·8928	5·8494
	11	-	-	-	-	-	1 *fitr* . . .		8·1026	8·0428
	13	-	-	-	-	-	-	1 *shibr*, spithamé, or span	9·5758	9·5051
	28	-	7	-	-	-	-	- 1 cubit .	20·6250	20·47291

In the foregoing table I have compared the cubit of the Nilometer, according to my measurements, taken from the monument, and the wooden cubit found at Memphis, described by M. Jomard,[1] which he reckons at 520 millimètres, or 20·47291 English inches.

That in the Museum at Turin he states to be . . .	522$\frac{7}{10}$	millimètres,	or 20·57869 English inches.
Another	523	„	or 20·61806 „
Another	524	„	or 20·65843 „
And he computes that of the Nilometer at . . .	527	„	or 20·74840 „

which last far exceeds my calculation.

The careless manner in which the graduation of the scales of the Nilometer at Elephantine has been made by the Egyptians renders the precise length of its cubit difficult to determine; but as I have carefully measured all of them, and have been guided by their general length as well as by the averages of the whole, I am disposed to think my measurement as near the truth as possible; and judging from the close approximation of different wooden cubits, whose average M. Jomard estimates at 523·506 millimètres, we may conclude that they were all intended

[1] Jomard, 'Étalon métrique,' and 'Lettre à M. Abel Rémusat sur une nouvelle Mesure de Coudée.'

to represent the same measures, strongly arguing against the supposition of different cubits having been in use, one of 24 and others of 28 and 32 digits; and, indeed, if at any time the Egyptians employed a cubit of a different length, consisting of 24 digits, it is not probable that it was used in their Nilometers, for architectural purposes, or for measuring land.

If it really existed, the name of Royal Cubit,[1] inscribed on these wooden measures, was doubtless applied exclusively to that of 28 digits (which I have shown to be the usual length of the wooden measures, and of the cubit of Elephantine), and the simple cubit may have contained only 24. I have received from Mr. Harris, of Alexandria, an account of a measure which has been discovered at Karnak, on the removal of some stones from one of the towers of a propylon, between which it appears to have been accidentally left by the masons, at the time of its erection, at the remote period[2] of the 18th Dynasty. It is divided into 14 parts, but each part is double in length those of the cubit of Elephantine, and therefore consists of 4 digits; and the whole measure is equal to 2 cubits, being $41\frac{3}{10}$ inches English. Thus then one of these contains 20·6500 inches, which suffices to show that the cubit of Elephantine was employed for ordinary purposes (differing from it only in ·0250 decimal parts), and confirms my opinion respecting the general use of one and the same measure. This double cubit has the first division in its scale of 14 parts subdivided into halves, and the next into quarters, one of these last being equal to 1 digit.

The length of the ancient Egyptian cubit and its parts may be stated as follows:—

		Of the Nilometer of Elephantine.		Of Memphis, according to Jomard.
1 digit or dactylus . .	= English inches	0·7366	..	0·73115
4 digits or 1 palm . .	= „	2·9464	..	2·92470
28 „ or 7 palms or 1 cubit	= „	20·6250	..	20·47291

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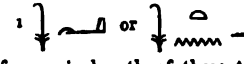
[1]  The difference in length of these two cubits was perhaps taken from the measurement at the upper side of the arm, A to B, B A to C, and the under or outside from A to C', which would be a difference of about four fingers.

[2] These towers were erected by Horus, or Haremhebi, a king of the 18th Dynasty, who reigned from 1408 to 1395 B.C., and who used stones from older monuments, bearing the *ovals* of the king [Khuenaten] whose name occurs at Tel el Amarna (Materia Hierog. V and W), who had also erased the name of Amenophis III.

The lengths of different Egyptian cubits are:—

	Millimètres.	Eng. inches.
The cubit in the Turin Museum, according to my measurement	522$\frac{4}{10}$ or	20·5730
The same, according to Jomard	522$\frac{7}{10}$ or	20·5786
Another	523 or	20·6180
Another	524 or	20·6584
Jomard's cubit of Memphis, mentioned above	520 or	20·4729
Cubit of Elephantine Nilometer, according to Jomard	527 or	20·7484
The same, according to my measurement		20·6250
Part of a cubit found by me on a stone at E'Sooan	about	21·0000
The cubit, according to Mr. Perring's calculation at the Pyramids	about	20·6280(?)
Mr. Harris' cubit from Thebes		20·6500

It is highly probable that the aroura,[1] or square land measure, was divided into poles, answering to the *ḳassobeh*, reed, now used in Egypt, by which the *feddán* is measured; and in the absence of any explanation of the ancient land measure, it may not be irrelevant to notice the mode of dividing the modern *feddán*. Till lately it was a square of 20 *ḳeerát*, carrots, or 400 *ḳassobeh*, reeds, or rods; and each *ḳassobeh* was divided into 24 *kharoobeh* or *ḳubdeh*. But various alterations have taken place in the modern land measure of Egypt; and even supposing the ancient aroura to have been divided in a similar manner, nothing can be obtained respecting the real contents of it, beyond what we learn from Herodotus, of its being a square of 100 cubits.

There is also much uncertainty respecting the length of the stade.[2] It is generally estimated at 600 feet or 606·875; though, from Herodotus at one time specifying 'a stade of six *plethra*,'[3] it would seem that on ordinary occasions he uses another of a different length; and the proportionate value of the measures, and of the dimensions of the monuments he describes in Egypt, are far from satisfactory. Nor is the schœne accurately defined; and Strabo,[4] on the authority of Artemidorus, states that the length of the schœne varied among the Egyptians.

Of the nomes, or provinces, of Egypt I have already treated; and have shown that the nomarchs,[5] who were similar to 'the officers appointed over the land' by Pharaoh,[6] and answered to

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[1] The *ar* is supposed to be equal to the *schoine*, and the pole, χα, equal to the *orgyia* of six feet. The mode of dividing and calculating the contents of a field is given in the geometric papyrus. The fields appear generally to have been small.—S. B.

[2] [If 600 stadia were equal to one degree, then the stade will be 611$\frac{33}{60}$ feet, or in round numbers 610 feet (Col. Leake on the Stade).—G. W.]

[3] This is supposed to be the *atur*, a certain distance performed by a boat on the river.—S. B. Herodot. ii. 149.

[4] Strabo, xvii. p. 553.

[5] Called *ha*; they were hereditary *repa*, but their fiefs were originally conferred upon them by the crown.—S. B.

[6] Gen. xli. 34.

the *beys* of the present system, superintended all the agricultural regulations established for the interests of the peasant, or connected with the claims of Government. I do not believe that the Government interfered directly with the peasant respecting the nature of the produce he cultivated, or that any of the vexations of later times existed under the Pharaohs. The peasants were naturally supposed to have obtained, from actual observation, the most accurate knowledge on all subjects connected with husbandry; and, as Diodorus observes,[1] 'being from their infancy brought up to agricultural pursuits, they far excelled the husbandmen of other countries, and had become acquainted with the capabilities of the land, the mode of irrigation, the exact season for sowing and reaping, as well as all the most useful secrets connected with the harvest,[2] which they had derived from their ancestors, and had improved by their own experience.' 'They rent,' says the same historian, 'the arable land belonging to the kings, the priests, and the military class, for a small sum, and employ their whole time in the tillage of their farms;' and the labourers who cultivated land for the rich peasant or other landed proprietors were superintended by the steward or owner of the estate, who had authority over them, and the power of condemning delinquents to the bastinado; and the paintings of the tombs frequently represent a person of consequence inspecting the tillage of the field, either seated in a chariot, walking, or leaning on his staff, accompanied by a favourite dog.

Their mode of irrigation I have already noticed. It was the same in the field of the peasant as in the garden of the villa; and the principal difference in the mode of tilling the former consisted in the use of the plough. The water of the inundation was differently managed in various districts. This depended either on the relative levels of the adjacent lands, or on the crops they happened to be cultivating at the time. When a field lay fallow, or the last crop had been gathered, the water was permitted to overflow it as soon as its turn came to receive it from the nearest sluices; or, in those parts where the levels were low

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[1] Diodor. i. 72.

[2] The condition of the husbandman, however, is not described in glowing terms by the scribe Pentaur in the Sallier Papyrus I. When he would gather in the crops, it says, the caterpillar ravages the kitchen garden, and the beasts, or hippopotami, eat up the other things; rats invade the field, birds alight, beasts consume, and sparrows steal; thieves also plunder, the ploughshare rusts, the yoke of beasts or horses die at ploughing, the tax-gatherer takes the sheaves, police and negroes add to the squabble and woes; and if he drinks, his wife and children suffer for it. (W. H. Goodwin, in the 'Cambridge Essays,' 1858, p. 250.)—S. B.

and open to the ingress of the rising stream, as soon as the Nile arrived at a sufficient height: but when the last autumn crop was in the ground, every precaution was taken to keep the field from being inundated; and 'as the water rose gradually, they were enabled,' says Diodorus,[1] 'to keep it out by means of small dams, which could be opened if required, and closed again without much trouble.'

In the sculptures of the tombs are sometimes represented canals conveying the water of the inundation into the fields; and the proprietor of the estate is seen, as described by Virgil,[2] plying in a light painted skiff or papyrus punt, and superintending the maintenance of the dykes, or other important matters connected with the land. Boats carry the grain to the granary, or remove the flocks from the lowlands; and as the water subsides, the husbandman ploughs the soft earth with a pair of oxen, and the same subjects introduce the offering of firstfruits to the gods, in acknowledgment of the benefits conferred by 'a favourable Nile.'[3] These subjects, however, give little insight into the actual mode of laying out the canals, being rarely more than conventional pictures; though we may infer from their general character that the main canal was usually carried to the upper or southern side of the land, and that small branches leading from it at intervals traversed the fields in straight or curving lines, according to the nature or elevation of the soil.

As the Nile subsided, the water was retained in the fields by proper embankments; and the mouths of the canals being again closed, it was prevented from returning into the falling stream. By this means the irrigation of the land was prolonged considerably, and the fertilising effects of the inundation continued until the water was absorbed. And so rapidly does the ardent sun of Egypt, even at this late period of the season—in the months of November and December—dry the mud when once deprived of its covering of water, that no fevers are generated, and no illness visits those villages which have been entirely surrounded by the inundation. For though some travellers pretend that the Nile ceases to rise to the same height as in the days of Herodotus, and assert that the villages no longer present

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[1] Diodor. i. 36.

[2] Virg. Georg. iv. 289.

[3] This is a translation of the expression used in Egypt for a favourable inundation: where they always speak of 'the time of the *Nile*,' or 'a good *Nile*,'—meaning the *inundation*.

the appearance he describes,[1] of islands resembling the Cyclades in the Ægean Sea, it is not less certain that the great inundations have precisely the effect he mentions; and I have seen the villages perfectly isolated, as in olden times. But this, as may be reasonably supposed, does not happen every year; and, as in all ages of Egyptian history, the Nile sometimes rises to a great height, and at others falls short of the same limit; and a casual observer, judging only of what he witnessed during a short stay in the country, may form too hasty an opinion, and draw conclusions which longer experience would prove to be erroneous.

As soon as the canals were closed, the quantity of fish collected in them afforded an abundant supply to the neighbouring villages; and, as already observed, the advantages arising from these fisheries were of the greatest importance both to the people and the revenue.

The land being cleared of the water, and presenting in some places a surface of liquid mud, in others nearly dried by the sun and the strong N.W. winds (that continue at intervals to the end of autumn and the commencement of winter), the husbandman prepared the ground to receive the seed; which was either done by the plough and hoe, or by more simple means, according to the nature of the soil, the quality of the produce they intended to cultivate, or the time the land had remained under water. When the levels were low, and the water had continued long upon the land, they often dispensed with the plough,[2] and probably, like their successors, broke up the ground with hoes, or simply dragged the moist mud with bushes[3] after the seed had been thrown upon the surface; and then merely drove a number of cattle, asses, pigs, sheep, or goats into the field, to tread in the grain.[4]

'In no country,' says Herodotus,[5] 'do they gather their seed with so little labour. They are not obliged to trace deep furrows with the plough, to break the clods, nor to partition out their fields into numerous forms, as other people do; but when the river of itself overflows the land, and the water retires again, they sow their fields, driving the pigs over them to tread in the seed; and this being done, every one patiently awaits the harvest.'

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[1] Herodot. ii. 97.

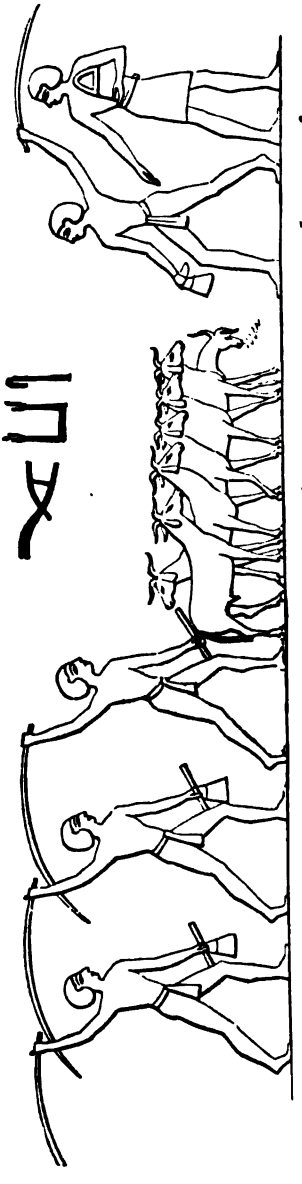
[2] To this, perhaps, the tenth verse of Deut. xi. refers, where mention is made of the simple process of sowing the seed in Egypt, 'as a garden of herbs.'

[3] A sort of harrow seems to have been used as early as the time of Job (xxxix. 10).

[4] Diodor. i. 36. Plin. xviii. 18. Woodcut No. 464.

[5] Herodot. ii. 14.

On other occasions they used the plough, but were contented, as Diodorus[1] and Columella[2] observe, with 'tracing slight furrows with light ploughs on the surface of the land;' and others followed the plough with wooden hoes[3] to break the clods of the rich and tenacious soil. The modern Egyptians sometimes substitute for the hoe a machine[4] called *khonfud*, 'hedgehog,' which consists of a cylinder studded with projecting iron pins, to break the clods after the land has been ploughed; but this is only used when great care is required in the tillage of the land: and they frequently dispense with the hoe; contenting themselves, also, with the same slight furrows as their predecessors, which do not exceed the depth of a few inches, measuring from the lowest part to the summit of the ridge. This mode of ploughing was called by the Romans *scarificatio*. The ancient plough was entirely of wood, and of very simple form, like that still used in Egypt. It consisted of a share, two *handles*, and the pole or beam; which last was inserted into the lower



No. 464.

Fig. 4. Goats treading in the grain, when sown in the field, after the water has subsided.
6 is sprinkling the seed from the basket he holds in his left hand; the others are driving the goats over the ground.
The hieroglyphic word above, *ek*, or *ikai*, signifies 'tillage,' and is followed by the demonstrative sign, a plough.

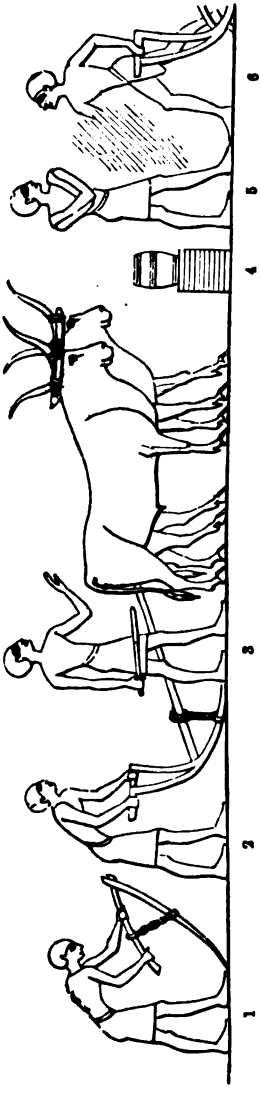
[1] Diodor. i. 36.

[2] Columella, de Re Rust. ii. 25.

[3] Of this instrument, dedicated to the god of gardens, I have given a remarkable instance ('Materia Hierog.' plate vi. and in plates of the Pantheon, in this volume). See Woodcuts No. 465 and No. 467.

[4] Vignette K, at the beginning of this chapter.

end of the stilt, or the base of the handles, and was strengthened by a rope connecting it with the heel. It had no coulter, nor were wheels applied to any Egyptian plough: but it is probable that the point was shod with a metal sock, either of bronze or iron. It was drawn by two oxen; and the ploughman guided and drove them with a long goad, without the assistance of reins, which are used by the modern Egyptians. He was sometimes accompanied by another man, who drove the animals,[1] while he managed the two handles of the plough; and sometimes the whip was substituted for the more usual goad. The mode of yoking the beasts was exceedingly simple. Across the extremity of the pole, a wooden yoke or cross bar, about fifty-five inches or five feet in length, was fastened by a strap, the *zygodesmos* of the Greeks, lashed backwards and forwards over a prominence, *omphalos*, projecting from the centre of the yoke, which corresponded to a similar peg, or knob, at the end of the pole; and occasionally, in addition to these, was a ring passing over them, as in some Greek chariots.[2] At either end of the yoke was a flat or slightly concave pro-



No. 465.

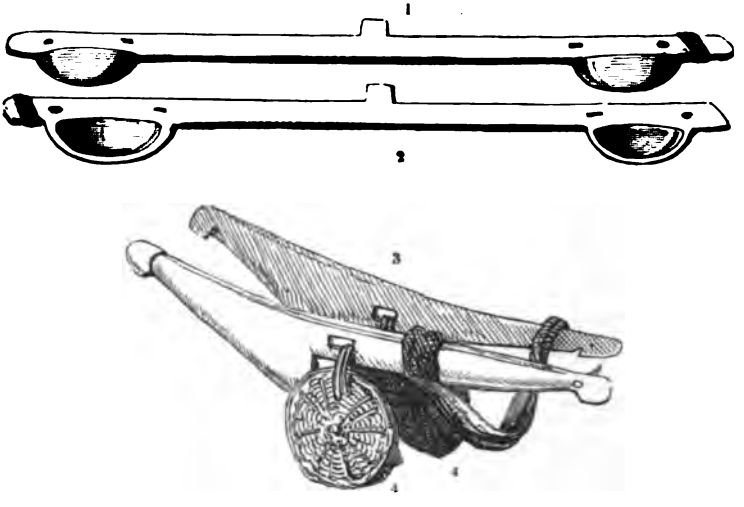
Fig. 1 breaks the clods of earth after the plough has passed.
2. A ploughman.
3. The driver.
4. A barrel, probably containing the seed.
5. An attitude common to the Egyptians.
6. Another ploughman. The ancient Egyptians were evidently as fond of talking while at work as their successors.

[1] Instances of both are given in woodcut No. 143, vol. i. p. 372.

[2] The parts, according to Homer, were called *ῥυμός*, the pole; *ζυγός*, the yoke; *ὀμφαλός*, a prominence in the centre of the yoke, corresponding with a peg or knob, *ἔστωρ*, at the end of the pole; to which it was connected by a ring, *κρίκος*, and then bound by the *ζυγόδεσμος*, or strap. (Il. Ω, 268.)

jection, of semicircular form, which rested on a pad placed upon the withers of the animal; and through a hole on either side of it passed a thong for suspending the shoulder-pieces, which formed the collar. These were two wooden bars, forked at about half their length, padded so as to protect the shoulder from friction, and connected at the lower end by a strong band passing under the throat.

Sometimes the draught, instead of being from the shoulder, was from the head, the yoke being tied to the base of the horns;[1]



No. 466. Yoke of an ancient plough found in a tomb. *Collection of S. D'Anastasy.*

Figs. 1, 2. The back and front of the yoke.
3. Collar or shoulder-pieces attached to the yoke.
4, 4. The pieces of matting for protecting the shoulders from friction.

and in religious ceremonies oxen frequently drew the bier, or the sacred shrine, by a rope fastened to the upper part of the horns, without either yoke or pole.

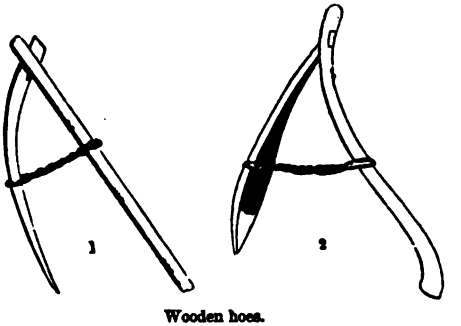
From a passage in Deuteronomy,[2] 'Thou shalt not plow with an ox and an ass together,' it might be inferred that the custom of yoking two different animals[3] to the plough was common in Egypt; but since no representation of it occurs in the sculptures, we may conclude, if it ever was done there, that it was of very rare occurrence; and it is probable that the Hebrew lawgiver had in view a practice adopted by some of the people of Syria, whose

[1] Woodcut No. 465.
[2] Deut. xxii. 10.
[3] I have often seen it done in Italy. The cruelty of the custom is evident, the horn of the ox wounding its companion.

country the Israelites were about to occupy, rather than the land of Egypt they had recently quitted.

The name of the plough was *hebi*;[1] ploughed land appears to have been *art*, a word still traced in the Arabic *hart*, which has the same import; and the Roman *aratrum* appears to indicate, like the *aroura*, an Egyptian origin.

The hoe was of wood, and in form not unlike our letter A, with one limb shorter than the other, and curving inwards: the longer limb, or handle, being of uniform thickness, round, and smooth; and the lower extremity of the other, or the blade, being of increased breadth, and either terminated by a sharp point, or rounded at the end. The blade was frequently inserted into the handle,[2] and they were bound together, about the centre, with a twisted rope. They are frequently represented in the sculptures, and several which have been found in the tombs of Thebes are



No. 467. Wooden hoes.

Fig. 1. From the sculptures. *Fig.* 2. Found in a tomb.

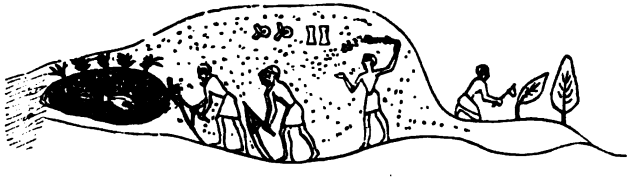
preserved in the museums of Europe. The figure of the hoe in hieroglyphics is well known: its alphabetic force is an M, though the name of this instrument was in Egyptian, as in Arabic, *toré*. It forms the commencement of the word *mai*, 'beloved,' and enters into numerous other combinations. I have found no instance of hoes with metal blades; nor is there evidence of the ploughshare having been sheathed with metal; though, as I have already observed, probability suggests that on some occasions the Egyptians may have adopted this simple improvement in their implements of husbandry.

The axe had a metal blade, either bronze or iron; and the peasants are sometimes represented felling trees with this implement; while others are employed in hoeing the field preparatory

[1] ϩʀß ı. [2] Woodcut No. 467.

to its being sown—confirming what I before observed, that the ancient as well as the modern Egyptians frequently dispensed with the use of the plough.

There has been some doubt respecting the admission of swine into the fields after the inundation, and considerable criticism has been expended on the statement of Herodotus above quoted. Some have objected that their voracious habits were more likely to injure than to benefit the cause of the husbandman, and that many other animals might be chosen for the purpose of treading in the grain, without the fear of their destroying what they were intended to preserve; but the learned Larcher very properly suggests that muzzling them would effectually obviate this inconvenience, and that the historian may allude to their admission into the fields previous to the sowing of the grain, for the purpose of clearing the land of roots and noxious weeds, whose growth was favoured by the water of the inundation; an opinion which



No. 468. Hoeing and sowing the land, and felling trees. Thebes.

is strengthened by the representation of some pigs given in a previous part of this work, from a tomb at Thebes, where the introduction of water-plants seems to indicate the use for which they were employed. Nor, indeed, considering how unclean these animals were considered by the Egyptians—the swineherd being deemed unworthy to intermarry with other persons—is it likely that they were kept for any but agricultural purposes; and no one has a greater appearance of probability than that to which I have alluded.

The heat of the climate rendered the duties of the ploughman particularly arduous, and care was taken to provide a supply of water, which was sometimes kept cool by suspending the skin that held it in a tree. At Beni-Hassan a barrel is represented placed at the extremity of the furrows, which calls to mind the description given by Homer[1] of the ploughing scene on the shield of Achilles, where, as soon as each ploughman arrived at the end of the field, a man presented him with a cup of wine; but, as

[1] Hom. Il. E, 541. Woodcut No. 465.

already observed, it seems more probable that it contained the grain intended for sowing the field after the plough had passed.

Like the Romans, they usually brought the seed in a basket,[1] which the sower held in his left hand, or suspended on his arm (sometimes with a strap round his neck), while he scattered the seed with his right;[2] and, judging from the paintings of the tombs, the sower sometimes followed the plough in those fields which required no previous preparation by the use of the hoe, or from their elevated level were free from the roots of noxious herbs. The mode of sowing was what we term 'broadcast,' the seed being scattered loosely over the surface, whether ploughed or allowed to remain unbroken; and in no agricultural scene is there any evidence of drilling or dibbling. Nor was the harrow or rake known in Egypt; and the use of the spade was supplied by the hoe, as it still is throughout the valley of the Nile.

Corn, and those productions which did not stand in need of constant artificial irrigation, were sown in the open field, as in other countries; but for indigo, esculent vegetables, and herbs, which required to be frequently watered, the fields were portioned out into square beds like our salt pans, surrounded by a raised border of earth to keep in the water, which was introduced by channels from the *shadoof*, or poured in with buckets;[3] and it is probably to this method of sowing the land and turning the water from one square to another, by pushing aside the mud to open one and close the next with the foot, that reference is made in a passage of Deuteronomy, already noticed.

Sometimes, as we are informed by Pliny,[4] they used a dressing of nitrous soil, which was spread over the surface—a custom continued to the present day; but this was confined to certain crops, and principally to those reared late in the year, the fertilising properties of the alluvial deposit answering all the purposes of the richest manure.[5] Its peculiar quality is not merely indicated by its effects, but by the appearance it presents: and so tenacious and silicious is its structure, that when left upon rock, and dried by the sun, it resembles pottery, from its brittleness and consistence. Its component parts, according to the analysis given by Regnault, are[6]—11 water, 9 carbon, 6 oxide of iron, 4 silica,

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[1] The Roman basket of seed contained three pecks or *modii*. (Colum. ii. 9.)

[2] Conf. Plin. xviii. 24.

[3] These square beds are represented in woodcut No. 389.

[4] Plin. lib. xix. c. 5.

[5] Cf. Plin. xviii. 18. Macrobius attributes the use of manure to Saturn (lib. i. c. 7).

[6] 'Mémoires sur l'Égypte,' tome i. p. 351.

4 carbonate of magnesia, 18 carbonate of lime, 48 alumen = 100; the quantity of silica and alumen varying according to the places

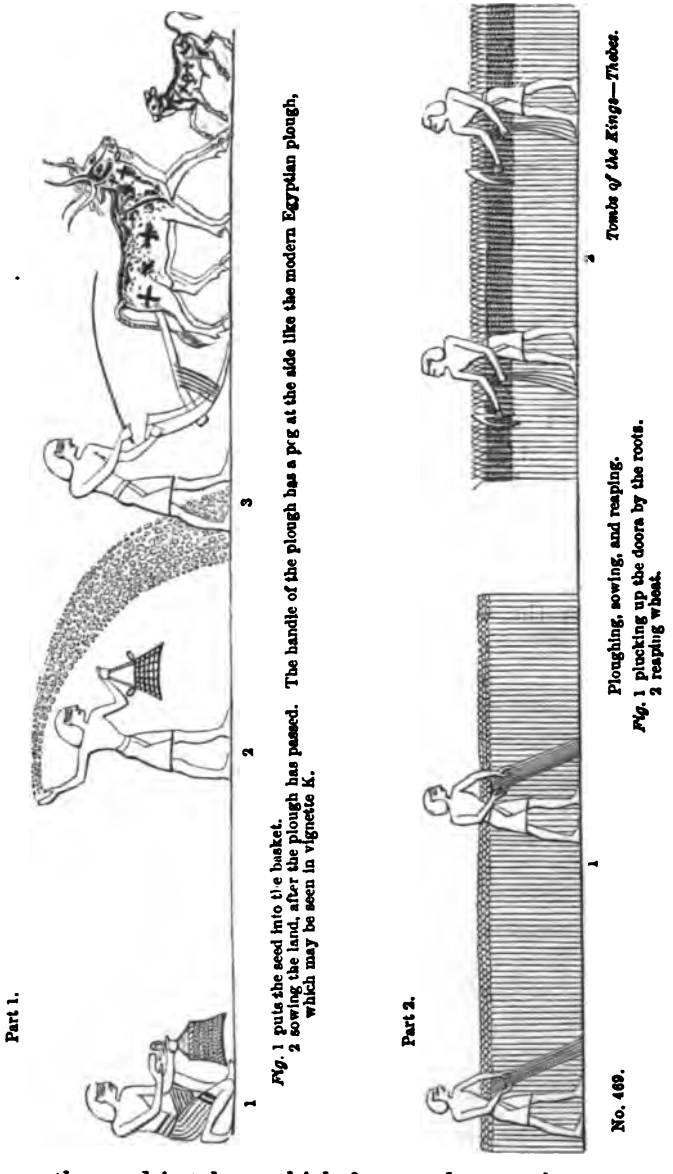

Fig. 1 puts the seed into the basket.
2 sowing the land, after the plough has passed. The handle of the plough has a peg at the side like the modern Egyptian plough, which may be seen in vignette K.

Tombs of the Kings—Thebes.

Ploughing, sowing, and reaping.
Fig. 1 plucking up the doora by the roots.
2 reaping wheat.

whence the mud is taken, which frequently contains a great admixture of sand near the banks, and a larger proportion of argillaceous matter at a distance from the river.

The same quality of soil and alluvial deposit seems to accompany the Nile in its course from Abyssinia to the Mediterranean; and though the White River is the principal stream, being much broader, bringing a larger supply of water, and probably coming from a greater distance than the Blue River, or Abyssinian branch, which rises a little beyond the lake Dembea, still this last claims the merit of possessing the real peculiarities of the Nile, and of supplying those fertilising properties which mark its course to the sea.[1] The White River, or western branch, likewise overflows its banks, but no rich mud accompanies its inundation; and though, from the force of its stream (which brings down numbers of large fish and shells at the commencement of its rise, probably from passing through some large lakes), there is evidence of its being supplied by an abundance of heavy rain, we may conclude that the nature of the mountains at its source differs considerably from that of the Abyssinian ranges.

Besides the admixture of nitrous earth, the Egyptians made use of other kinds of dressing for certain produce; and in those places where the vine was cultivated on alluvial soil, we may conclude they found the addition of gravel beneficial to that valuable plant—a secret readily learnt from its thriving condition, and the superior quality of the grape in stony soils: and some produce was improved by a mixture of sand. Nor were they neglectful of the advantages offered for the growth of certain plants by the edge of the desert, which, being composed of clay and sand, was peculiarly adapted to such as required a light soil; and the cultivation of this additional tract, which only stood in need of proper irrigation to become highly productive, had the advantage of increasing considerably the extent of the arable land of Egypt. In many places we still find evidence of its having been tilled by the ancient inhabitants, even to the late time of the Roman Empire; and in some parts of the Fyoom, the vestiges of beds and channels for irrigation, as well as the roots of vines, are found in sites lying far above the level of the rest of the country.

The occupation of the husbandman depended much on the produce he had determined on rearing. Those who solely cultivated corn had little more to do than to await the time of harvest;

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[1] [From what I observed in the Eastern Desert respecting the decomposition of basaltic rocks, I infer that the mud of the Nile is produced from the decomposition of volcanic rocks in Abyssinia, and that similar rocks are not to be met with in the upper course of the Bahr el Abiad, or White River.—G. W.]

but many crops required constant attention, and some stood in need of frequent artificial irrigation.

In order to give a general notion of the quality of the crops, and other peculiarities relating to their agriculture, I shall introduce the principal productions of Egypt in the two following tables; of which the first presents those raised after the retirement of the inundation:—

English Name.	Botanical Name.	Remarks.
Wheat	Triticum sativum (Arab. *Ḳumh.*)	Sown in November; reaped in beginning of April, a month later than barley; conf. Exod. ix. 32.
Barley	Hordeum vulgare (Arab. *Shayéer.*)	Sown at the same time; reaped some in 90 days, some in the 4th month.[1]
Beans	Vicia faba (Arab. *Fool.*)	Sown in October or November; cut in about 4 months.
Peas?	Pisum arvense (Arab. *Bisilleh.*)	Sown in the middle of November; ripen in 90 or 100 days.
Lentils	Ervum lens (Arab. *Ads.*)	Sown in the middle or end of November; ripen in 100 or 110 days, or about 10th to 20th of March.
Vetches	(Hommos) Cicer arietinum (Arab. *Hommos.*)	
Lupins	Lupinus Termis (Arab. *Termus.*)	Id. Called *tharmos* in Coptic, which is still retained in the modern Arabic name *Termus.*
Clover	Trifolium Alexandrinum. (Arab. *Bersím.*)	Sown in beginning of October; first crop after 60 days, second after 50 more days, third left for seed; if a fourth crop is raised by irrigation, it produces no seed.
	Trigonella fœnum-græcum. (Arab. *Helbeh.*)	The *Helbeh*, or Trigonella fœnum-græcum, sown in November; cut in about 2 months.
	Lathyrus sativus. (Arab. *Gilbán.*)	Lathyrus sativus, a substitute for clover, gathered in 60 days; seed ripens in 110.
A sort of French Bean	Dolichos lubia (Arab. *Loobieh.*)	Sown at the same time as wheat in November; ripens in 4 months. A crop raised by the *shadoof* in August, gathered in about 3 months; its beans for cooking in 60 days.
Safflower	Carthamus tinctorius (Arab. *Ḳortum.*)	The flowers used for dyeing; the seeds giving an oil. Sown middle of November; seeds ripen in 5 months.
Lettuce	Lactuca sativa (Arab. *Khus.*)	Cultivated for oil. Sown in middle of November; seeds ripen in 5 months.
Flax	Linum usitatissimum (Arab. *Kettán.*)	Sown middle of November; plucked in 110 days.
Colseed	Brassica oleifera (Arab. *Selgam.*)	Yields an oil. Sown middle of November; cut in 110 days.
Hemp?	Cannabis sativa (Arab. *Hasheesh.*)	
Cummin	Cuminum Cyminum (Arab. *Kammoon.*)	Sown middle of December; cut in 4 months.
Coriander	Coriandrum sativum (Arab. *Koosbera.*)	

[1] Pliny (xviii. 7) says in the sixth, and wheat in the seventh month after sowing.

English Name.	Botanical Name.	Remarks.
Poppy	Papaver somniferum. (Arab. *Aboonôm.*)	Sown end of November; seeds ripen in April. The Arabic name signifies father (of) sleep.
Water Melon, and several other Cucurbitæ.	Cucurbita citrullus . (Arab. *Batéekh.*)	Sown middle of December; cut in 90 days.
Cucumber, and other Cucumidæ.	Cucumis sativus . .	Cut in 60 days.
Doora	Holcus Sorghum. . (Arab. *Doora Sayfee.*)	Independent of the crop raised by the *shadoof*, and that *during* the inundation; sown middle of November; ripens in 5½ months.

All these, the ordinary productions of modern Egypt, appear to have been known to and cultivated by the ancient inhabitants; and, according to Dioscorides, from the *Helbeh*, or Trigonella, was made the ointment called by Athenæus[1] *Telinon*. The *Carthamus tinctorius* is now proved, by the discovery of its seeds in a tomb at Thebes, to have been an old Egyptian plant; and there is reason to believe the coleseed to be an indigenous production, though it may be doubted if peas and hemp were formerly grown in the valley of the Nile.

The Carthamus was not only cultivated for the dye its flower produced, but for the oil extracted from its seeds. The ancient as well as the modern Egyptians also obtained oil from other plants, as the olive, *simsim* or sesamum, the *cici* or castor-berry tree, lettuce, flax, and *selgam* or coleseed. This last, the *Brassica oleifera* of Linnæus, appears to be the Egyptian *raphanus* mentioned by Pliny[2] as 'celebrated for the abundance of its oil,' unless he alludes to the *seemga*, or *Raphanus oleifer* of Linnæus, which is now only grown in Nubia and the vicinity of the First Cataract. The seeds of the *simsim* also afforded an excellent oil, and they were probably used, as at the present day, in making a peculiar kind of cake, called by the Arabs *Koosbeh*, which is the name it bears when the oil has been previously extracted.[3] When only *bruised* in the mill, and still containing the oil, it is called *Taheéneh;* and the unbruised seeds are strewed upon cakes, or give their name and flavour to a coarse conserve, called *Halooweh simsemeéh*. The oil of *simsim* (called *seerig*) is considered the best lamp-oil in the country; it is also used for cooking, but is reckoned inferior in flavour to that of the lettuce.[4]

[1] Athen. lib. v. p. 195.
[2] Plin. xix. 5, and xv. 7.
[3] Ibid. xviii. 10.
[4] Pliny shows it was inferior to the oil of the cypros, since they were in the habit

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The castor-berry tree is called by Herodotus[1] *Sillicyprion*, and the oil, *kiki* (*cici*), which he says is not inferior to that of the olive for lamps, though it has the disadvantage of a strong unpleasant smell. Pliny[2] calls the tree *cici*, which, he adds, 'grows abundantly in Egypt, and has also the names of croton, trixis, tree sesamum, and ricinus.' The mode he mentions of extracting the oil, by putting the seeds into water over a fire and skimming the surface, is the manner now adopted in Egypt; though he says the ancient Egyptians merely pressed them after sprinkling them with salt. The press, indeed, is employed for this purpose at the present day, when the oil is only wanted for lamps;[3] but by the other method it is more pure, and the coarser qualities not being extracted, it is better suited for medicinal purposes. Strabo says, 'Almost all the natives of Egypt used its oil for lamps, and workmen, as well as all the poorer classes, both men and women, anointed themselves with it,' giving it the same name, *kiki*, as Pliny, which he does not confine, like Herodotus, to the oil; and of all those by which it was formerly known in Egypt or Greece, no one is retained by the modern Egyptians. It grows in every part of Upper and Lower Egypt; but the oil is now little used, in consequence of the extensive culture of the lettuce, the coleseed, the olive, the carthamus, and the *simsim*, which afford a better quality for burning: it is, therefore, seldom employed except for the purpose of adulterating the lettuce and other oils; and the ricinus is rarely cultivated in any part of the country.

Herodotus tells us the ancient Egyptians adopted both methods of pressing and boiling the seeds, which is much more probable than the statement of Pliny; the choice of the two depending, as I have observed, on the quality of the oil they required. The cnicon, a plant unknown in Italy, according to Pliny,[4] 'was sown in Egypt for the sake of the oil its seeds afforded;' the chorticon, urtica, and amaracus[5] were cultivated for the same purpose,[6] and the cypros, 'a tree resembling the ziziphus in its foliage, with seeds like the coriander, was noted in Egypt, particularly on the Canopic branch of the Nile, for the excellence of its oil.'[7] Egypt was also famed for its 'oil of bitter

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of 'adulterating the cyprine with the sesamine oil' (xiii. 1).

[1] Herodot. ii. 94. [2] Plin. xv. 7.

[3] Pliny evidently had an aversion to castor oil, in which he cannot be considered singular. Strabo, xvii. p. 566.

[4] Plin. xxi. 15. [5] Ibid. xxi. 11, 22.

[6] Ibid. xv. 7, and xxii. 13.

[7] Ibid. xii. 24, xiii. 1, and xxiii. 4. Athen. xv. p. 688.

almonds;'[1] and many other vegetable productions were encouraged for the sake of their oil,[2] for making ointments, or for medicinal purposes.

In the length of time each crop took to come to maturity, and the exact period when the seed was put into the ground, much, of course, depended on the duration of the inundation, the state of the soil, and other circumstances; and in the two accompanying tables I have been guided by observations made on the crops of modern Egypt, which, as may be supposed, differ in few or no particulars from those of former days; the causes that influence them being permanent and unvarying.

'The plants of the summer season,' as I have elsewhere observed,[3] 'which succeed the above mentioned, either immediately or after a short interval, are produced solely by artificial irrigation.' 'But the use of the *shadoof* is not confined to the productions of summer; it is required for some in spring, and frequently throughout the winter, as well as in autumn, if the inundation be deficient;' and the same system was, of course, adopted by the ancient Egyptians. The chief productions sown the half year before and during the inundation, are enumerated in the table below. Herbs and esculent roots were cultivated in great abundance by the Egyptians, experience having taught them that a vegetable diet was highly conducive to health in their climate; and the sculptures, the authority of Pliny,[4] the fact of four thousand persons being engaged in selling vegetables at Alexandria[5] when that place was taken by Amer, and the habits of the people at the present day, show how partial they always were to their use. The same may be remarked of the Italians; and it is a curious fact that several Roman families of note received their names from the cultivation of certain pulse.[6]

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[1] Plin. xiii. 1.

[2] In the former place, I have mentioned some ointment preserved in a vase at Alnwick Castle, upon which I have lately received some observations by Dr. Ure, who says, 'In consistence, this unguent is intermediate between tallow and hog's lard. It has an orange-yellow colour. Its specific gravity is 0·391; and this density would seem to indicate the presence of rosin. It gives a greasy stain on paper, not removable by heat. It is soluble in hot oil of turpentine and in hot alcohol, but it precipitates from the latter in the cold. From these results I am of opinion that it is of the nature of a fixed fat, which may have been flavoured with an essence or volatile oil; but it does not belong to the class of stearoptenes, like attar of roses, or the precious Oriental perfumes.' I may also here introduce the analysis which Dr. Ure has favoured me with of a bronze chisel: of 100 parts, 94·0 are copper, 5·9 tin, 0·1 iron = 100.

[3] 'Topography of Thebes and General View of Egypt,' p. 263.

[4] Conf. Plin. xxi. 15.

[5] Pliny says, 'All kinds of pulse appear above the ground, in Egypt, on the third day' (xviii. 7).

[6] As the Lentuli, Fabii, Pisones.

English Name.	Botanical Name.	Remarks.
Rice[1]	Oryza sativa . . . (Arab. *Rooz* or *Aroos.*)	Cut in 7 months: in October. Grown in the Delta.
Doora	Holcus Sorghum . . (Arab. *Doora Kaydee.*)	Sown at beginning or end of April; cut at rise of Nile in 100 days. Its seed sown as Byoód.
Byoód or autumn *Doora*	Holcus Sorghum . . (Arab. *D. Byoód* or *Dimeéree.*)	Sown middle of August; cut in 4 months; but its seed, no longer prolific, is all used for bread.
Yellow Doora . . .	Holcus Sorghum . . (Arab. *D. Saffra.*)	Sown when the Nile is at its height, in middle of August, and banked up from the inundation; ripens in 120 days.
Millet	Holcus saccharatus . (Arab. *Dokhn.*)	Only in Nubia and the Oases: sown at same time as the Doora.
Cotton	Gossypium herbaceum[2] (Arab. *Koton.*)	Planted in March, and summer. In good soil some is gathered the 5th month.
Simsim, Sesame . .	Sesamum orientale . (Arab. *Simsim.*)	Gives an oil. Ripens in about 100 days. Sown 10 days after the Doora Byoód.
Indigo	Indigofera argentea[3]. (Arab. *Néeleh.*)	Sown in April: the first crop in 70 days; second in 40; third in 30; fourth in 25, in the first year: it is then left without water all the winter, and watered again in March. Then the first crop is cut after 40 days; second in 30; third in 30; and the same in the third year. After three years it is renewed from seed. The first year's crop is the best.
Henneh.	Lawsonia spinosa et inermis.	Used for the dye of its leaves.
Water-melon . . .	And other Cucurbitæ. (Arab. *Bateekh*, &c.)	During the rise of the Nile and in March, on the sandbanks of the river.
Onion (Leek, and Garlic)	Allium Cepa, &c. . (Arab. *Bussal.*)	Sown in August.
Bámia	Hibiscus esculentus, or perhaps only the H. præcox.	Mostly in gardens. Gathered in 50 or 60 days, in September or October. Many other vegetables were raised at different seasons, by artificial irrigation.

Having, in the preceding tables, shown the seasons when the principal productions of Egypt were raised, I proceed to enumerate those which appear from good authority to have been grown by the ancient Egyptians. Wheat,[4] barley,[4] *doora*,[5] peas,[6] beans,[7]

[1] It is not certain that rice was cultivated formerly in Egypt. [There is no evidence of it, and none has been found. —S. B.]

[2] Has not been found in Egypt.

[3] The blue colour of the selvages of the ancient linen may have been produced by indigo.

[4] Exod. ix. 31, 32, and the seed found in the tombs.

[5] The seeds found in the tombs.

[6] Said to be found in the tombs.

[7] Herodot. ii. 37. Diodor. i. 89. Plin. xviii. 12.

lentils,[1] *hommos*,[2] *gilbán*,[3] carthamus,[4] lupins,[4] *bámia*,[5] *figl*,[6] *simsim*,[7] indigo,[8] sinapis or mustard,[9] origanum,[10] succory,[11] flax,[12] cotton,[13] cassia senna,[14] colocynth,[15] cummin,[16] coriander,[17] several cucurbitæ, 'cucumbers, melons, leeks, onions, garlic,'[18] lotus,[19] nelumbium,[20] cyperus esculentus,[21] papyrus,[22] and other cyperi,[23] are proved to have been cultivated by them; and the learned Kircher mentions many productions of the country,[24] principally on the authority of Apuleius and early Arab writers. But the greater part of these last are wild plants; and indeed, if all the indigenous productions of Egypt (which unquestionably grew there in ancient as well as modern times) were enumerated, a large catalogue might be collected, those of the desert alone amounting to nearly 250 species. For though the Egyptian Flora is limited to about 1300, the

[1] Virg. Georg. i. 228. Plin. xviii. 21: 'Duo genera ejus in Ægypto.' Plut. de Isid. s. 68. Aul. Gell. xvii. 8, and in the tombs. [2] *Cicer arietinum.*

[3] *Lathyrus sativus.*

[4] Found in the tombs.

[5] *Hibiscus esculentus.*

[6] *Raphanus sativus*, var. *edulis*, of Linnæus. Herodot. ii. 125. Plin. xv. 7, and xix. 5.

[7] Plin. xv. 7.

[8] Cloths found dyed with it.

[9] Plin. xix. 8: 'Semen (sinapis) optimum Ægyptium.'

[10] Ibid. xix. 8.

[11] Ibid. xix. 8, xx. 8, and xxi. 15. *Cichorium intybus*, Linn. Pliny calls it 'Erraticum intubum.'

[12] Exod. ix. 31, &c.

[13] Plin. xix. 1, &c.

[14] An indigenous plant, called by the Arabs *Senna mekkeh*: the best is brought from Ethiopia and the interior of Africa.

[15] An indigenous plant.

[16] Plin. xx. 15. Seeds used on bread in Egypt, as at the present day (ibid. xix. 8).

[17] Plin. xx. 20. In Numbers xi. 7, the manna was compared to coriander seed, which the Israelites had seen in Egypt. The name of manna, properly *men* or *min*, signifies 'what:' for 'when the children of Israel saw it, they said to one another, *What* (is) this? (it is *manna*) for they wist not *what* it was.' (Exod. xvi. 15.) 'And the house of Israel called the name thereof *what* (*manna*).' (ver. 31.)

[18] Numbers xi. 5.

[19] Buds found in the tombs. Herodot. ii. 92, &c. Plin. xiii. 7.

[20] Herodot. ii. 92. It now only grows in India. It is called by Pliny Colocasia as well as Cyamon (xxi. 15).

[21] The seeds found in the tombs.

[22] Plin. xiii. 11. Herodot. ii. 92 Isaiah xix. 7. Found dried in the tombs.

[23] Indigenous. (Plin. xxi. 18.)

[24] *Antiamas*, or minor Centaurea. *Asout*, or Plantago major. *Mené*, or Satyrion, called Panion. *Ortebioké*, or *Ophitebioca*, Pentaphyllum. *Nemenestphe*, or *Nesphe*, Chamæpythys. *Anesen*, or Artemisia. *Saphi*, or Hyoscyamus. *Sepheseph*, or *Sophsoph* [*Safsaf* in Arabic is the willow —G. W.] (Arab. *Zarawend*), Aristolochia? *Linn. Semmebri*, or *Samur*, Chamælea. *Eminion*, or *Asclepias*, probably the *Osher*, or Asclepias gigantea. *Pempiempht*, Verbena? *Antouerm'bous*, Lingua bovis (*Lissan-e'tor*), Borrago officinalis? *Linn. Asteropé*, or Marrubium, or Prasion (*Phraseon*), Marrubium Alyssum, *Linn. Sulétho*, or Squill, Scilla maritima (*Bussal el far*). *Semet*, or Nasturtium? *Taborin* (Chamomile) (Arab. *Babooneg*), Santolina fragrantissima, *Forsk. Stempht* (Sanguinaria), Polygonum. *Palalia*, or Cyclaminus. *Ethôoui*, or Venus's Hair, Adianthum Capillus Veneris, *Linn. Nisine*, or Heliotrope. *Menipht*, or Dictamnus. *Lotometra*, or Lotus, Nymphæa Lotus, *Linn. Soumonas*, or Mint (*Naanaa*), Mentha Kahirina, *Forsk. Somi*, or Absynthium Marinum, or Seriphium. *Aphlophoi*, or Mercurialis Herba. *Thôdn*, or *Bryonia*, Vitis alba. *Phepre*, or Scolopendra. *Agathosdemon*, or Cyclaminus. *Pantagatha*, or Origanum. *Aiméôs*, or wild Myrtle. *Dentorobon*, or Cuscuta. *Motmoutin*, or Portulaca (Oleraceæ?). *Iratória*, or Betonica. *Ochebn*, or Coriander. *Anysi*, or Salvia. (Kircher, Prod. et Lex. Sup. c. 8, and Œdipus.)

indigenous plants constitute a large proportion of that number, and few countries have a smaller quantity introduced from abroad than Egypt, which, except in a few instances, has remained contented with the herbs and trees of its own soil; and the plants of the desert may be considered altogether indigenous, without, I believe, one single exception. It is true, as I have observed, that these last belong to ancient as well as modern Egypt, but I do not think it necessary to enter into any description of them in the present work; and shall content myself with a brief enumeration of those mentioned by Pliny, together with the most striking characteristics or properties he ascribes to them. I have arranged them in the order in which they are given by the naturalist, not according to their botanical classification, some being unknown; and in assigning the botanical names, I have received much assistance from the Paris edition of Pliny, by Desfontaines, from which I have in few instances found reason to dissent.

Name from Pliny.	lib.	cap.	Botanical Name.	Remarks.
A plant producing ladanum.	xii.	17	Cistus ladaniferus . .	'The plants which produce ladanum, introduced into Egypt by the Ptolemies.' *Plin.*
Tree producing Myrobalanum, Myrobalanus.	xii. xxiii.	21 5	Moringa aptera?[1] . . (Arab. *Yessur*, fruct. *Hab-ghâlee.*)	'Producing a fruit from which an oil or ointment was extracted. Growing in the Thebaïd.' *Plin.*
Palma,[2] called Adipsos .	xii.	22	——————?	'Gathered before ripe: that which is left is called Phœnicobalanus, and is intoxicating.' *Plin.*
Sphagnos, Bryon, or Sphacos	xii. xiii. xxiv.	23, 28 1 6	Parmelia parietina? . (Arab. *Shegeret e'neddeh.*)	'Said to grow in Egypt.' *Plin.* A sort of lichen growing on trees. Oil extracted from it. *Plin.* xiii. 1.
Cypros	xii. xiii. xxiii.	24 1 4	Lawsonia spinosa et inermis. (Arab. *Henneh.*)	'Bearing leaves like the Zizyphus. Cooked in oil to make the ointment called Cyprus. The best grown about Canopus. Leaves dye the hair.' *Plin.*
Maron	xii.	24	Teucrium Iva? (Arab. *Miskeh?*)	There are four or five other species of Teucrium in Egypt.

[1] There appears more reason to suppose it the moranga than the *Balanites Ægyptiaca*, or *Myrobalanus Chebulus* (Arab. arbor *Eglèeg*, fruct. *Lalôb*). They both grow in the Egyptian desert. The former is called *Yessur*: the seeds, contained in a long pod, are called *Hab-ghâli*. This and the Balanites are very different; but Pliny's description is very indefinite, and might apply to one or the other. Theophrastus and Dioscorides neither agree with each other, nor with Pliny.

[2] Pliny appears to mention two trees which produced myrobalanum, the myrobalanus and the 'palma quæ fert myrobalanum.' (Lib. xxiii. 5.) The fruit of this last being without any stone, was owing to their gathering it when young. When full grown, it was called Phœnicobalanus.

Name from Pliny.	lib.	cap.	Botanical Name.	Remarks.
(————————) . .	xii.	25	Amyris Opobalsamum . (Arab. *Belisân.*)	Balsam in Egypt, according to Dioscorides and Strabo, till lately cultivated at Heliopolis.
Elate (Abies?) Palma, or Spathe	xii. 28 xxiii. 5		————————?	'Of use for ointments.' *Plin.* It is supposed to be the sheath of the palm flowers. *Dioscor.* i. 150. (Arab. *Sabât*, conf. *Spathe.*)
Amygdalus, Almond . .	xiii.	1	Amygdalus communis . (Arab. *Lôz.*)	'Oil of bitter almonds made in Egypt.' *Plin.*
Palma, Palm	xiii.	4	Phœnix dactylifera . . (Arab. *Nakhl.*)	'Thebaic palms.' *Plin.* xxiii. 4.
Myxa	xiii.	5	Cordia Myxa, Sebestena domestica. *Alpin.* (Arab. *Mokhâyt.*)	'Wine made from the fruit in Egypt.' *Plin.*
Ficus Ægyptia . . .	xiii. 7 xxiii. 7		Ficus Sycomorus . . (Arab. *Gimmays.*)	'Fruit growing on the stem itself.' *Plin.* and *Athen.* Deipn. ii. p. 51.
(*Ceratonia Siliqua*) . .	xiii.	8	Ceratonia Siliqua . . (Arab. *Kharoôb.*)	Locust tree, or *Kharoôb*, said by Pliny *not* to grow in Egypt. It is now an Egyptian tree.
Persica or Peach[1] . .	xiii. 9 xv. 13		Amygdalus Persica . . (Arab. *Khokh.*)	Pliny rejects the idle tale of the peach being a poisonous fruit introduced by the Persians into Egypt (lib. xv. 13). [The apricot grows in the oases, especially in the Western Oasis, and in the little oases. In the first of these places I found it in blossom in the middle of February. It also grows at Farâfieh, in the Western desert.—G. W.]
Cuci	xiii.	9	Hyphæne Thebaïca . . (Arab. *Dôm.*)	'Like to a palm, but with spreading branches. Fruit fills a man's hand; of a brown yellow colour. That within large and hard; turned and made into pulleys or sail rings. The nucleus within it eaten when young; exceedingly hard when dry (and) ripe.' [The name *kuko* in the hieroglyphics has been supposed to mean the coco-nut palm, but it must be the *Hyphæne Thebaïca.* And the coco does not, and will not, grow in Egypt.—G. W.]
Spina Ægyptia, the Acanthus of Herodotus and Strabo	xiii. 9, 11 xxiv. 11, 12		Mimosa Nilotica . . (Arab. *Sont.*)	'Seed pods used for tanning.' 'Produces gum.' *Plin.*; *Athen.* xv. p. 680. Groves of it at Thebes, Memphis, and Abydus: the last two still remain.
Quercus, Oak . . .	xiii.	9	Quercus ————	'About Thebes, where the Persica, olive (and spina) grow.'[2] *Plin.* The oak is now unknown in Egypt.

[1] Pliny appears to have confounded the Peach and Persea together in lib. xii. 9. In lib. xv. 13, he is evidently speaking of the peach.

[2] In this sentence, 'Circa Thebas hæc (spina) ubi et quercus, et Persica et oliva,' on the authority of Theophrastus (who says, lib. iv. 3, 'Silva ingens circa agrum Thebanum est, ubi et robur, et Persea, et olea'), the Persica should be Persea; supposed to be the *Balanites Ægyptiaca.* The trees now growing at Thebes are principally the *Mimosa Nilotica*, *Tulh*, *Sellem*, and *Albida* [*Sodada decidua*, which I met with at

Name from Pliny.	lib.	cap.	Botanical Name.	Remarks.
(Persea)	xiii.	9	Balanites Ægyptiaca . (Arab. *Eglèeg*, fruct. *Lalôb*.)	Grows in the Eastern desert of the Thebaïd. *Descr. de l'Égypte. Bot.*, pl. 28, fig. 1.
Oliva, Olive	xiii.	9	Olea Europæa . . . (Arab. *Zaytoôn*.)	'The olives of Egypt very fleshy, but with little oil.' *Plin.* xv. 3. This is very true. Strabo says, 'The Arsinoïte nome alone (excepting the gardens of Alexandria) produces the olive. The oil is very good if carefully extracted; if not, the quantity is great, but with a strong odour' (lib. xvii. p. 556). [The olive is much cultivated in the gardens of the oases; but the oil, roughly extracted, is strong and bad. The olives are bruised between two stones, and the oil has salt added to it. In the Wad e' Dakhleh they have oil pressed only by the hand, near the fire; this makes a better quality of oil. The olives are about one inch in length, as in the gardens of the Convent of St. Anthony in the Eastern desert, where some are even larger.—G. W.]
	xv.	3		
Prunus Ægyptia . . .	xiii.	10	Rhamnus[1] Spina Christi, or R. Nabeca, *Forsk.* (Arab. *Nebk*.)	'Near Thebes.'
Papyrus or Byblus . .	xiii.	11, 12	Cyperus papyrus[2] . (Arab. *Berdi* ?)	Strabo, xvii. p. 550.
	xxiv.	11		

Thebes and Medeenet Haboo], and sycamore. The wood Pliny mentions was at some distance from the Nile: but there must be an error in his expression, 300 stades (about 37 miles) from the river. I have introduced the Persea as well as the Peach. The former, if it be really the *Eglèeg*, is now only found in Southern Ethiopia, and in the deserts south of the latitude of Ombos and E'Soean; and indeed it appears, even in the time of the Romans, that care was required for its preservation in the valley of Egypt, since a law was made by them against cutting down the Persea.

[1] Pliny's description does not altogether agree with the *Rhamnus*, as he says the *Prunus* resembles the *Spina* or *Acacia*, especially in its feathery leaves, which when touched fall, and rise again. This calls to mind the sensitive plant, or *Mimosa sensitiva*; but it is unknown in Egypt. [It is only found as a bush in Ethiopia, where it abounds by the river-side.—G. W.] I thought Pliny might have had in view the *Sodada decidua*, or *Tonthob*; but I am inclined to refer his *prunus* to the *Nabeca*. [The *R. Nabeca* was the *Lotus* of Homer's Lotophagi.—G. W.]

[2] [This is the *Cyperus papyrus* which, like the *Nelumbium*, is no longer a native of Egypt. It now only grows in the Anapus, near Syracuse, and it is said to have been found in a stream on the coast of Syria, as in Pliny's time (xiii. 11). Herodotus is wrong in calling it an annual plant. The use of the pith of its triangular stalk for paper made it a very valuable plant; and the right of growing the best quality, and of selling the papyrus made from it, belonged to the Government. It was particularly cultivated in the Sebennytic nome, and various qualities of the paper were made. It is evident that other *Cyperi*, and particularly the *Cyperus dives*, were sometimes confounded with the *Papyrus*, or *Byblus hieraticus* of Strabo; and when we read of its being used for mats, sails, baskets, sandals, and other common purposes, we may conclude that this was an inferior kind mentioned by Strabo; and sometimes a common *Cyperus*, which grew wild, as many still do, was thus employed in its stead. It is, however, evident that a variety of the papyrus was so used, men being represented on the monuments making small boats of it; and we may conclude this was a coarser and smaller kind not adapted for paper. The best was grown with great care. Pliny says the papyrus was not found about Alexandria, because it was not *cultivated* there; and the necessity of this is shown by Isaiah's mention of 'the paper reeds by the brooks . . . and everything *sown* by the brooks.' (Is. xix. 7.) This prophecy is still more remarkable from its declaring that the papyrus shall no longer grow in the country; that it 'shall wither, and be driven away, and be no more.' Theophrastus is correct in saying it grew in shallow water; or in marshes, according to Pliny: and this is represented on the monuments, where it is placed at the side of a stream, or in irrigated lands. Pliny describes the mode of making the paper (xiii. 11), by cutting thin slices of the pith and laying them in rows; and these being crossed with other slices, the whole was made to adhere by great pressure.—G. W.]

Name from Pliny.	lib. cap.	Botanical Name.	Remarks.
Lotus	xiii.[1] 17 xxiv. 2	Nymphæa Lotus[2] . . (Arab. *Beshnín.*)	
Punicum malum or Granatum, Pomegranate.	xiii. 19	Punica Granatum . . (Arab. *Roomán.*)	'The flower called Balaustium.' *Plin.* It is the ancient *rhodon* or rose, which was used for its dye, and gave its name to the island of Rhodes. It is possibly on the reverse of the coins of that island [in their archaic style, but not on those of later time, when the true rose is always represented.—G. W.]
Tamarix, Myrice, Tamarisk	xiii. 21 xxiv. 9	Tamarix Gallica . . (Arab. *Tarfa.*)	'Called also Myrice, or wild brya, very abundant in Egypt and Syria.' 'Brya, or bryonia, commonly called Arbor infelix.' *Plin.*
Ferula	xiii. 22 xx. 23	Ferula communis? or Bubon tortuosum? (The Crythmum Pyrenaicum of Forskal.) (Arab. *Shebet e' Gebel.*)	'Knotted and hollow stem, very light, good for matches. Some call the seed *Thapsia.*' *Plin.* Two kinds, like the anethum. A large umbelliferous plant, supposed to be a sort of wild fennel.

[1] In lib. xiii. c. 16, Pliny mentions the *Thya* tree growing in the Oasis of Ammon and the Cyrenaica, on the authority of Theophrastus, which he says was known to Homer; its wood was very durable, and was used for rafters in temples.

[2] [This *Nymphæa Lotus* grows in ponds and small channels in the Delta during the inundation, which are dry during the rest of the year; but it is not found in the Nile itself. It is nearly the same as our white water-lily. Its Arabic name is *nufár*, or *nilófer*, or *beshnín*; the last being the ancient *pi-sshnn*, or *pi-shneen*, of the hieroglyphics. There are two varieties—the white, and that with a bluish tinge, or the *Nymphæa cærulea*. The Buddhists of Tibet and others call it *nenuphar*. Though the favourite flower of Egypt, there is no evidence of its having been sacred; but the god Nefer-Atum bore it on his head, and the name *nufar* is probably related to *nofar*, 'good,' and connected with his title. It was thought to be a flower of Hades, or Amenti; and on it also Harpocrates is often seated. He was the Egyptian Aurora, or day-spring; not the god of silence, as the Greeks supposed, but figured with his finger in his mouth, to show one of the habits of childhood of which he was the emblem. Hence he represented the beginning of day, or the rise and infancy of the sun, which was typically portrayed rising every morning from that flower, or from the water; and this may have given rise to the notion of Proclus that the lotus flower was typical of the sun. Eratosthenes also says this son of Isis was the 'god of day.' The Egyptian mode of indicating silence was by placing 'the hand on the mouth' (Job xxix. 9). The frog was also an emblem 'of man as yet in embryo,' as Horapollo and the Egyptian monuments show. The lotus flower was always presented to guests at an Egyptian party; and garlands were put round their heads and necks; —the 'multæque in fronte coronæ.' (Hor. Od. i. 26 and 38; ii. 7; iii. 10; iv. 11. Athenæus, xv. Ovid, Fast. v. Anacreon, ode iv.) It is evident that the lotus was not borrowed from India, as it was the favourite plant of Egypt before the Hindoos had established their religion there.

Besides the seeds of the lotus, poor people doubtless used those of other plants for making bread, like the modern Egyptians, who used to collect the small grains of the *Mesembryanthemum nodiflorum* for this purpose; and Diodorus (i. 80) says the roots and stalks of water-plants were a great article of food among the lower classes of Egyptians.

Perhaps the *Nymphæa Nelumbo*, or *Nelumbium*, which is common in India, but which grows no longer in Egypt. And the care taken in planting it formerly seems to show it was not indigenous in Egypt. Crocodiles and the *Nelumbium* are represented, with the Nile god, on the large statue in the Vatican at Rome, and in many Roman-Egyptian sculptures; but it is remarkable that no representation of the *Nelumbium* occurs in the sculptures of ancient Egypt, though the common *Nymphæa Lotus* occurs so often. Pliny calls it Colocasia, as well as Cyanon (xxi. 15). Dr. Pickering's 'Phys. Hist. of Man,' p. 368, &c.—G. W.]

Name from Pliny.	lib.	cap.	Botanical Name.	Remarks.
Capparis	xiii.	23	Capparis spinosa (Arab. *Lussuf.*)	The Caper. The fruit of the Egyptian caper, or *Lussuf*, is very large, like a small cucumber, about 2½ inches long, which is eaten by the Arabs.
Sari	xiii.	23	Cyperus dives? or C. fastigiatus? (Arab. *Dees.*)	*Theophr.* iv. 9. 'It grows on the banks of the Nile, with a head (*coma*) like the papyrus, and is eaten in the same manner.' *Plin.*
Vitis, Vine	xiv. xvi.	3, 7 18	Vitis vinifera (Arab. *Enéb.*)	Pliny says that no trees, not even vines, lose their leaves about Memphis and Elephantine. (Lib. xvi. 21.)
Cici, Croton, Trixis, or Sesamum	xv.	3	Ricinus communis (Arab. *Kharwah.*)	Castor-berry tree, or Palma Christi. 'Oil extracted from it abounds in Egypt.' *Plin.*
Raphanus	xv. xix.	7 5	Raphanus oleifer, or the Brassica oleifer. (Arab. *Seemga*, or the *Selgam*?)	'Oil made from its seeds in Egypt.' *Plin.* It is probably the *Seemga* or Raphanus oleifer, and not the sativus, that he alludes to. He may perhaps have had in view the *Selgam* (Brassica oleifer), or coleseed, so common throughout Egypt. The *Seemga* is now confined to Nubia and the southern extremity of the Thebaid.
Chorticon, a Grass	xv.	7		'Oil extracted from it.' *Plin.*
Sesama	xv.	7	Sesamum orientale (Arab. *Simsim.*)	'Cultivated for its oil.'
Urtica, called Cnecimum, or Cnidium	xv. xxii.	7 13	Urtica pilulifera (Arab. *Fiss el Kelàb.*)	'Giving an oil.' 'The Alexandrian the best quality.' 'Used also medicinally.' *Plin.* Supposed to be a nettle.
Pyrus Alexandrina, Pear of Alexandria	xv.	15	Pyrus communis? (Arab. *Koomittree.*)	Perhaps of Greek introduction.
Ficus, Fig	xv.	18	Ficus Carica (Arab. *Tin.*)	It is a singular fact, that the small fruit of the wild fig of the Egyptian desert, and of Syria, is called by the Arabs *Kottayn*, since Pliny says, 'the small Syrian figs are called *Cottana*.' (Lib. xiii. c. 5.) The tree is called *Hamdt.*
Myrtus, Myrtle	xv.[1] xxi.	29 11	Myrtus communis (Arab. *As*, or *Mersia.*)	'The myrtle of Egypt is the most odoriferous.' *Plin.* and *Athen.* xv. It is now only grown in gardens. Pliny in another place says, 'The flowers of Egypt have very little odour' (xxi. 7),[2] probably on the authority of Theophrastus. *Hist. Plant.* vi. 6; *De Caus. Plant.* vi. 27.

[1] According to Pliny, 'the cherry-tree could not be produced in Egypt by any means.' (Lib. xv. c. 25.) It is not grown there now.

[2] Pliny contradicts himself when he says, 'in Ægypto minimo odorati flores, quia nebulosus et roscidus aër est a Nilo flumine,' having before stated (lib. v. 9) that the same river alone, of all others, 'nullas expirat auras;' and (lib.

Name from Pliny.	lib.	cap.	Botanical Name.	Remarks.
Calamus, Reed	xvi.	36[1]	Arundo donax, and Arundo Isiaca. (Arab. *Ḳussub*, and *Boos.*)	'Used by many nations for arrows, so that half the world has been conquered by reeds.' *Plin.*
Hordeum, Barley	xviii.	7	Hordeum vulgare. (Arab. *Shayír.*)	
Triticum, Wheat	xviii.	8	Triticum sativum. (Arab. *Ḳumh.*)	
Zea	xviii.	8	Triticum Zea?	'The Egyptians make a medicinal decoction of olyra for children, which they call Athara.' *Plin.* xxii. 25.
Olyra	xviii.	10	Holcus Sorghum? (Arab. *Dóora.*)	
Tiphe	xviii.	11	Triticum Spelta?	
Faba, Beans	xviii.	12	Vicia Faba (Arab. *Fool.*)	'With a prickly stalk.' *Plin.*
Lens, Lentils	xviii.	12	Ervum Lens (Arab. *Ats*, or *Addus.*)	'Two kinds of lentils in Egypt.' *Plin.*
Linum, Flax	xix.	1	Linum usitatissimum (Arab. *Kettán.*)	'Four kinds,—the Tanitic, Pelusiac, Butic, and Tentyritic.' *Plin.*
Gossypion, Cotton	xix.	1	Gossypium herbaceum (Arab. *Ḳóton.*)	'Called Gossypion, or Xylon: the cloths made from it hence named Xylina.' *Plin.*
Aron	xix.	5	Arum Colocasia?	'About the size of a squill;'
	xxiv.	16	(Arab. *Ḳolḳás.*)	'with a bulbous root.' *Plin.*
Aris	xxiv.	16	Arum Arisarum?	'Like the Aron, but smaller; the root being the size of an olive.' *Plin.*
Allium, Garlic	xix.	6	Allium sativum. (Arab. *Tóm.*)	'Both ranked by the Egyptians among gods, in taking an oath.' *Plin.*
Cepa, Onion	xix.	6	Allium Cepa (Arab. *Bussal.*)	
Porrum, Leek	xix.	6	Allium Porrum. (Arab. *Korrát.*)	'The best kind is in Egypt.' *Plin.*
Cuminum, Cummin	xix.	8	Cuminum Cyminum, and	Pliny speaks of two, one whiter
	xx.	15	Nigella sativa. (Arab. *Kammoon-abiad* and *Kammoon-aswed.*)	than the other, used for the same purpose, and put upon cakes of bread at Alexandria. The white and black Cuminum are called by the Arabs *Kammoon-abiad* and *Kammoon-aswed:* the latter is the Nigella sativa.
Origanum	xix.	8	Origanum Ægyptiacum	Heracleotic.
	xx.	17	(Arab. *Bardakoosh.*)	
	xxv.	4		

xvii. 2) 'calidus semper aër est in Ægypto:' and the reason he assigns for the deficiency of scent in Egyptian flowers would rather tend to increase than diminish it. Herodotus (ii. 19) and Diodorus (i. 38) say the same of the Nile. The words of the former are, 'The Nile is the only river which does not produce cold winds;' of the latter, 'The Nile is the only river about which clouds never collect, cold winds never blow, and where the air is not thickened (by fogs):' but these statements are not borne out by fact. Some flowers in Egypt, in certain situations particularly, have a very strong scent, as the bean, which is much more powerful than in Europe. Those of the class *Pentandria* (a very extensive one in nature) may be considered as having less scent than in Europe; but this class, it is true, does not contain the most fragrant species of plants; and many of the *Syngenesia* (as well as *Didynamia*) have a very powerful scent, particularly the Artemisias, the *Santolina*, and the *Robl*, a kind of Inula.

[1] Pliny says (lib. xvi. 40), 'Cedar wood was used by the kings of Egypt and Syria for want of fir (*abies*):' but he does not state that it grew in Egypt.

Name from Pliny.	lib.	cap.	Botanical Name.	Remarks.
Sinapis, Mustard. . .	xix.	8	Sinapis juncea . . . (Arab. *Khardel*, or *Kubbr.*)	'The best seed is the Egyptian. Called also Napy, Thaspi, and Saurion.' *Plin.*
Cichorium, or Intubus erraticus	xx. 8 xxi. 15		Cichorium Intybus . . (Arab. *Shihórieh.*)	'In Egypt, the wild endive is called Cichorium; the garden endive, Seris.' *Plin.*
Seris	xx.	8	Cichorium Endivia? . (Arab. *Hendebeh.*)	
Anisum, Aniseed . . .	xx.	17	Pimpinella Anisum. . (Arab. *Yensoón.*)	'The Egyptian is the best quality after the Cretan.' *Plin.*
Coriandrum	xx.	20	Coriandrum sativum . (Arab. *Kusber*, or *Koozbareh.*)	'The best is from Egypt.' *Plin.*
[Papaver nigrum . .	xx.	18	Papaver somniferum . (Arab. *Aboo-nóm.*) .	Its opium is exported from Egypt, and is often adulterated at Alexandria. The wild poppy is the Rhœas of the Greeks. (*Plin.* xix. 8.) It is so called from its red colour. The seeds of the poppy, so freely used in Greek cookery (*Athenæus passim*), have no soporific properties.—G. W.]
Buceros, or Fœnum Græcum	xxi. 7 xxiv. 19		Trigonella Fœnum Græcum. (Arab. *Helbeh.*)	'Without any scent.' *Plin.*
(*Helenium*)	xxi.	10, 21	Teucrium Creticum? .	Helenium (according to Dioscorides), a native of Egypt. This and four other species of Teucrium now grow there.
Amaracus	xxi.	11, 22	Origanum Majorana .	'What is called by Diocles and the Sicilians, Amaracus, is known in Egypt and Syria as the Sampsuchum.' 'An oil made from it.' *Plin.* Athenæus (xv. p. 676) says, 'The Amaracus abounds in Egypt;' and in lib. v. he mentions Amaracine ointment.
Melilotus	xxi.	11	Trifolium Melilotus Indica. (Arab. *Reḫrak* or *Nafal?*)	'Grows everywhere.' *Plin.*
Rosa, Rose	xxi.	11	Rosa centifolia . . . (Arab. *Werd.*)	If by 'In Ægypto sine odore hæc omnia,' Pliny means that *all* the flowers mentioned in this chapter are Egyptian, many others might be here introduced.
Viola, Violet	xxi.	11	Viola odorata . . . (Arab. *Benefsig.*)	
Colocasia, or Cyamus, or Faba Ægyptia . . .	xxi.	15	Nymphæa Nelumbo, or Nelumbium.	'Growing in the Nile:' 'one of the wild plants which abound so plentifully in Egypt.' *Plin. Athen.* iii. p. 72. *Strabo*, xvii. p. 550.
Anthalium	xxi.	15, 29	Supposed to be the Cyperus esculentus. (Arab. *Hab el ázeez.*)	'Grows some distance from the Nile.' 'Fruit like a medlar, without husk or kernel. Leaf of the Cyperus. No other use but for food.' *Plin.* Some suppose it the Cyperus esculentus, which is very doubtful.

Name from Pliny.	lib.	cap.	Botanical Name.		Remarks.
Œtum	xxi.	15	Supposed to be the Arachis hypogæa ?[1]		'Also eaten in Egypt. Few leaves; large root.' *Plin.* Theophrastus says, it has a long root, gathered at the time of the inundation, and used for crowning the altars. (Lib. i. c. 1, 11.)
Arachidna	xxi.	15	——————?	All esculent plants.	'These two have spreading and numerous roots; but neither leaf nor anything above the ground.' *Plin.*
Aracos[2]	xxi.	15	——————?		
Condrylla	xxi.	15	Lactuca sativa ?. (Arab. *Khuss.*)		Lettuce ?
Hypocheris	xxi.	15	Hyoseris lucida		
Caucalis	xxi.	15	Caucalis daucoïdes ?		
Anthriscum	xxi.	15	Caucalis anthriscus. (Arab. *Gezzer e' shaytán.*)		
Scandix or Tragopogon	xxi.	15	Tragopogon picroides ? (Arab. *Edthbáh ?*)		'Leaves like a crocus.' *Plin.*
Parthenium	xxi.	15, 30	Matricaria Parthenium, or M. Chamomilla.		Dioscorides describes its flower with a white circuit and yellow within.
	xxii.	17			
	xxv.	5			
Strychnum, or Strychnus, or Trychos, or Solanum	xxi.	15, 31	Solanum Dulcamara, or Solanum nigrum. (Arab. *Eneb e'deeb.*)		'Used in Egypt for chaplets: the leaves like ivy: of two kinds; one has red berries (in a sort of bladder) full of grains, and is called Halicacabus, or Callion, and, in Italy, Vesicaria: the third kind is very poisonous.' Nightshade.
	xxvii.	13			
Corchorus	xxi.	15, 32	Corchorus olitorius. (Arab. *Melokheëh.*)		'Eaten at Alexandria.' *Plin.*
Aphace	xxi.	15	Leontodon Taraxacum		'Flowers all the winter and spring, till the summer.' *Plin.* Dandelion.
Acinos	xxi.	15, 27	Thymus Acinos, or Ocymum Zatarhendi. (Arab. *Zátar.*)		'The Egyptians grow the Acinos for making chaplets and for food. It appears the same as the Ocimum, but its leaves and stalks are more hirsute.' *Plin.*
Epipetron	xxi.	15	Sedum confertum (Arab. *Heialem.*)		'Never flowers.' *Plin.* Some editions of Pliny make this and the Acinos the same; but they are generally believed to be different.
Cnicus, or Atractylis	xxi.	15, 32	Carthamus tinctorius ? (Arab. *Koortum.*) The other is perhaps the Carthamus Creticus		Supposed to be the Carthamus. 'Unknown in Italy. Oil extracted from the seeds, and of great value. Two kinds; the wild and the cultivated; and two species of the former. Remedy against the poison of scorpions and other reptiles.' *Plin.* It is supposed that the Cnicus and Atractylis are not the same plant.

[1] I do not believe this to be a native of Egypt.

[2] Some have supposed these two to be of the genus Lathyrus: I think erroneously.

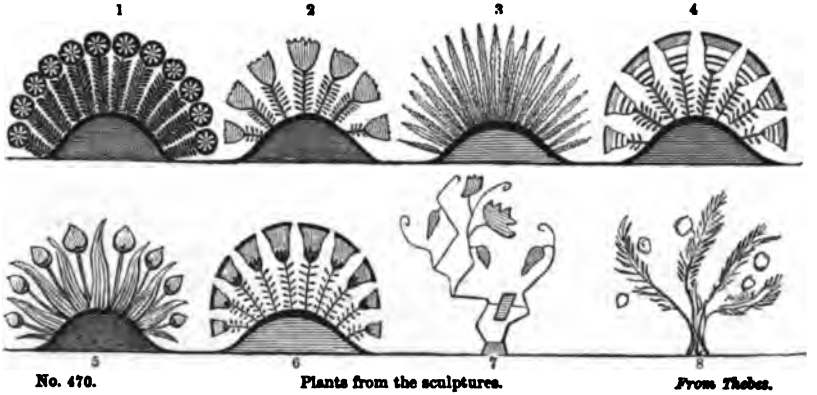
Name from Pliny.	lib.	cap.	Botanical Name.	Remarks.
Tribulus	xxi.	16	Trapa natans	'Grows about the Nile in marshes, and is eaten. Leaf like the elm.' *Plin.*
	xxii.	10		
Perdicium	xxi.	17	———	'Eaten by other people, as by the Egyptians.' 'Grows on walls and tiles of houses.' *Plin.*
	xxii.	17		
Ornithogale	xxi.	17	Ornithogalum Arabicum?	
Juncus	xxi.	18	Juncus acutus (Arab. *Sumár.*)	'Sieves made of it in Egypt.' *Plin.*
Cyperus	xxi.	18	Gladiolus communis	'With a bulbous root.' *Plin.*
Cyperus	xxi.	18	Cyperus Niloticus, and many other species.	'A triangular rush.' *Plin.*
Heliochrysum, or Chrysanthemum	xxi.	25	Gnaphalium Stœchas	'Gods crowned with it; a custom particularly observed by Ptolemy, king of Egypt.' *Plin.*
Persoluta	xxi.	33	———	'Grown in gardens in Egypt for making chaplets.' *Plin.*
Lotometra	xxii.	21	A large kind of cultivated lotus, or Nymphæa Lotus.	'Coming from the garden lotos, from whose seed, like millet, the Egyptian bakers make bread.' *Plin.*
(*Rhus*)	xxiv.	11[1]	Rhus oxyacantholdes (Arab. *Errin.*)	('Rhus: leaves like myrtle, used for dressing skins.' Though Pliny does not mention it as an Egyptian plant, it is indigenous in the desert, and the leaves and wood are used by the Arabs for tanning.)
Egyptian Clematis, or Daphnoides, or Polygonoides	xxiv.	15	Vinca major et minor?	'Mostly produced in Egypt.' *Plin.*
Ophiusa	xxiv.	17	———	'About Elephantina.' *Plin.*
Stratiotis	xxiv.	18	Pistia Stratiotes (Arab. *Heialem el ma.*)	'Only in Egypt, during the inundation of the Nile.' *Plin.*
Nepenthes	xxi.	21	Perhaps the *Bust* or *Hasheesh*, a preparation of the Cannabis sativa.	'Homer attributes the glory of herbs to Egypt. He mentions many given to Helen by the wife of the Egyptian king, particularly the Nepenthes, which caused oblivion of sorrow.' *Plin.* [The Nepenthes is thought to be a preparation of opium, and not a plant; but opium was well known
	xxv.	2		

to the ancients, as well as various preparations of that drug. Pliny says: 'The Helenium which sprang (as stated xxi. 10) from the tears of Helen, has a similar effect with Nepenthes.' 'The Helenium is a shrub with small branches stretching along the ground, about nine inches long, with a leaf resembling that of wild thyme' (x.). Some suppose the Helenium to be the *Inula campania*, or Elecampane, but neither its properties nor its appearance accord with the account of Pliny. The best Helenium grows in the island of Helene or Macris (now called Macronis, and lying five miles from Sunium, and from Cos), thought, says Strabo, to be the Homeric Cranaë. Writers are not, however, all agreed as to the modern Macronis being Helene.—G. W.]

[1] In the same chapter Pliny says ebony is not produced in Egypt.

Name from Pliny.	lib. cap.	Botanical Name.	Remarks.
Absinthium marinum, or Seriphium . . .	xxi. 21 xxvii. 7	Artemisia Judaica? . (Arab. *Bytherán.*)	'The best at Taposiris in Egypt: a bunch of it carried at the fête of Isis.' *Plin.*
Myosotis	xxvii. 12	Myosotis arvensis . .	'The Egyptians believe that if, on the 27th day of Thiatis (Thoth), which answers nearly to our August, any one anoints himself with its juice before he speaks in the morning, he will be free from weakness of the eyes all that year.' *Plin.*

The trees of ancient Egypt have been already mentioned. I shall therefore only add, in confirmation of their having been known in the early times of the Pharaohs, that the paintings of the tombs represent the date, *dôm*, sycamore, pomegranate,[1] persea, tamarisk, and *Periploca Secamone;* and the fruit, seeds,



No. 470. Plants from the sculptures. From Thebes.

Figs. 1 to 6 inclusive, from the tomb of Rameses III.

or leaves of the *nebk*,[2] vine, fig, olive, *Mokhayt*,[3] *Kharoôb* or locust tree,[4] palma Christi or *cici*,[5] *Sont* or acacia,[6] bay, and *Eglèeg* or balanites,[7] have been found in the tombs of Thebes.[8] Many seeds and fruits also occur there; as the Areca, Tamarind, Myrobalanus, and others, which are the produce either of India or the interior of Africa: but these are not readily confounded with the actual

[1] Numb. xx. 5: 'of figs, or of vines, or of pomegranates.'

[2] *Rhamnus Nabeca*, Forsk.

[3] *Cordia Myxa*, Linn.

[4] *Ceratonia Siliqua*, Linn. Pliny calls it *Ceraunia Siliqua*, and says it did not grow in Egypt (xiii. 8).

[5] *Ricinus communis*, Linn., the castor-berry tree.

[6] *Mimosa* or *Acacia Nilotica.*

[7] *Balanites Ægyptiaca*, supposed to be the *Persea.*

[8] It is said that the lime and Seville orange have been found, which is singular, as they are supposed to have been first introduced from India by the Arabs.

productions of Egypt. They are, however, highly interesting, as they show the constant intercourse maintained with those distant countries.

The sculptures represent various trees and flowers, some of which may be recognised, while others are less clearly defined: of the latter I submit those given in woodcut No. 470, to the expert botanist, who may be disposed to suggest their names, or the family to which they belong.

Little attention is now paid by the inhabitants[1] of Egypt to the cultivation of plants beyond those used for the purpose of food, or to the growth of trees, excepting the palm, large groves of which are met with in every part of the country; and indeed, if the statement of Strabo[2] be true, that 'in all (Lower) Egypt the palm was sterile, or bore an uneatable fruit, though of excellent quality in the Thebaïd,' this tree is now cultivated with more success in Lower Egypt than in former times, some of the best quality of dates being produced there, particularly at Korayn, near the Delta, where the kind called *A'mares* is superior to any produced to the N. of Nubia.

Few timber trees are now grown to any great extent either in Upper or Lower Egypt. Some sycamores, whose wood is required for water-wheels and other purposes; a few groups of *Athuls*, or Oriental tamarisks, used for tools and other implements requiring a compact wood; and two or three groves of *Sont*, or *Mimosa Nilotica*, valuable for its hard wood and for its pods used in tanning, are nearly all that the modern inhabitants retain of the many trees grown by their predecessors. But their thriving condition, as that of the mulberry-trees (planted for the silk-worms), which form, with the *Mimosa Lebbek*,[3] some shady avenues in the vicinity of Cairo, and of the *Cassia fistula* (bearing its dense mass of blossoms in the gardens of the metropolis), show that it is not the soil, but the industry of the people, which is wanting to encourage the growth of trees.

The *Eglèeg*, or balanites, the supposed Persea, no longer thrives in the valley of the Nile; many other trees are rare, or altogether unknown; and the extensive groves of Acanthus, or *Sont*, are rather tolerated than encouraged, as the descendants of the

[1] Besides these, there have been recently discovered the representatives of the flora and fauna brought from the land of Taneter to Egypt in the reign of Thothmes III., in his twenty-fifth year. (Mariette, Karnak, pl. 31.)—S. B.

[2] Strabo, xvii. p. 563.

[3] [The Arab tradition is, that this tree worshipped Christ, when He was in Egypt. It was rare in Egypt even in the time of Wansleb (1672).—G. W.]

trees planted in olden times near the edge of the cultivated land. Their value is understood: the sale of *Sont* pods is a revenue to the owner without the trouble of cultivation; the trees are found by a son as they were left by his father; but no trouble is taken to add to their number, and this careless indifference about their growth is confirmed by the unwise system of a government which taxes every tree, and makes it a cause of vexation to its possessor. But though many are gone, it is interesting to see these few remnants of ancient groves, which have continued to occupy the same spots, perhaps, from the earliest times. The grove of Acanthus alluded to by Strabo still exists above Memphis, at the base of the low Libyan hills: in going from the Nile to Abydus, you ride through the grove of Acacia, once sacred to Apollo, and see the rising Nile traversing it by a canal similar to that which conveyed the water thither when the geographer visited that city, even then reduced to the condition of a small village; and groves of the same tree may here and there be traced in other parts of the Thebaïd, from which it obtained the name of the Thebaïc thorn. Above the Cataracts the *Sont* grows in profusion upon the banks of the Nile, where it is used for charcoal, sent to Cairo for sale by the poor Nubians; and its place is supplied in the desert by the *Sealeh* and other of the Mimosa tribe, which are indigenous to the soil.

Many flowers and shrubs were grown in pots or wooden boxes in the gardens or the walks near the houses of the ancient Egyptians; and to the garden department belonged the care of the bees, which were kept in hives similar to our own.[1] In Egypt bees require great attention; and so few are the plants at the present day, that the owners of hives often take them in boats to various spots upon the Nile in quest of flowers. They are a much smaller species than our own; and though I have met with them wild in many parts of Egypt, I never saw them in any numbers; but wasps, hornets, and ichneumons abound throughout the valley of the Nile. The wild bees hive mostly under stones, or in clefts of the rock, as in many other countries; and the expression of Moses and of the Psalmist, 'honey out of the rock,'[2] shows that in Palestine their habits were the same. Virgil[3] mentions a mode of replenishing the stock of bees, practised in Egypt, by means of the carcase of a bull, which, as M. de Pauw supposes, is

[1] I remember to have seen them so represented in a tomb at Thebes, but have no copy of the subject.

[2] Deut. xxxii. 13. Ps. lxxxi. 16.

[3] Virg. Georg. iv. 229. Plin. xi. 20.

probably a story derived from the custom of raising young swarms in the warmth of a stable;[1] but neither this, nor any other secret respecting their management, can be looked for in the sculptures of the tombs; and whatever skill the Egyptians possessed in these, as in many other matters, must continue unknown to us; though, from the great importance[2] they attached to honey[3] as a welcome offering to the gods and an article of luxury, we may conclude that great pains were taken in rearing bees; and the difficulty of procuring for them an abundant supply of food at certain seasons, doubtless led to the adoption of many curious expedients, which, being unnecessary, were unthought of in other countries.

The principal woods used by the Egyptians were the date, *dôm*, sycamore, acacia, tamarisk, *egléeg* or balanites, ebony, fir, and cedar. The various purposes to which every part of the palm or date tree was applied, have been already noticed, as well as of the *dôm*, or Theban palm. Sycamore wood was employed for coffins, boxes, small idols, doors, window-shutters, stools, chairs, and cramps for building; for handles of tools, wooden pegs or nails, cramps, idols, small boxes, and those parts of cabinet work requiring hard compact wood, the *Sont* or *Acacia Nilotica* was usually preferred; and spears were frequently made of other acacias, which grew in the interior or on the confines of the desert.

In tools of various kinds, the wood of the *Tamarix orientalis* was likewise much used, and even occasionally in pieces of furniture, for which purpose the *egléeg* was also employed; but the principal woods adopted by the cabinet-maker for fine work were ebony, fir, and cedar. The first came from the interior of Africa, and formed, with ivory, gold, ostrich feathers, dried fruits, and skins, the principal object of the annual tribute brought to Egypt by the conquered tribes of Ethiopia and the Soodán; fir and cedar being imported from Syria. The two last were in great demand for ornamental furniture, for coffins, small boxes, and various objects connected with the dead; and many woods of a rare and valuable kind were brought to Egypt by the people of Asia tributary to the Pharaohs, the beauty and value of which may be estimated by the frequent custom of imitating them, for the satisfaction of those who could not afford to purchase furniture or trinkets of so expensive a material.

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[1] He thinks of the sacred bulls; but there is no necessity that they should have been sacred.

[2] Plut. de Isid. s. lxxxi. 68.

[3] The bee is not represented on the monuments: the insect, the emblem for king so often repeated, being the hornet or wasp; honey, however, is often mentioned.—S. B.

There is reason to believe that the ancient Egyptians encouraged, or at least profited by, the growth of many wild plants of the desert, which were useful for medicinal purposes. Many of them are still known to the Arabs, as the *Salvadora Persica*, the *Irák* or *Erák* of the Arabs; the twigs are used for making tooth-brushes, by splitting or fraying out the fibres at the cut end of the branchlet; it grows plentifully in the southern parts of the Eastern desert. This has been, by some, supposed to be the Sinapis or mustard of Matthew xiii. 31. The Arabs also knew the *Heliotropium inebrians*, *Lycium Europæum*, *Scilla maritima*, *Cassia Senna*, *Ochradenus baccatus*, *Ocimum Zatarhendi*, *Linaria Ægyptiaca*, *Spartium monospermum*, *Hedysarum Alhagi*, *Santolina fragrantissima*, *Artemisia Judaica* (*monosperma* and *inculta*), *Inula undulata* and *crispa*, *Cucumis*, *Colocynthis*, &c. And many others have probably fallen into disuse from the ignorance of the modern inhabitants of the country, who only know them from the Arabs, by whom the traditions concerning their properties are preserved. From what Homer tells us of 'the infinity of drugs produced in Egypt,' the use of 'many medicines' mentioned by Jeremiah, and the frequent allusion by Pliny to the medicinal plants of that country, we may conclude that the productions of the desert (where those herbs mostly grow) were particularly prized; and several were found of great use in dyeing, tanning, curing skins, and various other purposes. Of these, the most remarkable were the fungi, for dyeing; the pods of the *Acacia Nilotica*, the bark of the *Acacia Seyal*, and the wood and bark of the *Rhus oxyacanthoides*, for tanning; and the *Periploca Secamone*,[1] for curing skins.

The process adopted in the employment of these plants I shall not now stop to describe, nor shall I enter into any detail of their medicinal use, and the maladies they are said to cure: this will more properly form part of a dissertation on the botany of Egypt, reserved for a future work. But I may be allowed to make one observation on the *Owseg*, *Owshes*, or *Lycium Europæum*, though not immediately connected with the subject of Egypt. This thorny shrub, called by the Copts Ramnus, which is common in the hills throughout Lower Egypt and Syria, has a better claim to the title of 'the holy thorn,' of which the Saviour's crown is said to have been made, than any other plant. The modern and ancient Greeks agree with the Copts in giving it the name Ramnus; and

[1] This climbing plant appears to be represented in the tomb of Rameses III. at Thebes, used in lieu of the ivy, which in its leaf it slightly resembles.

Pliny[1] evidently had in view the *Owshes* when he says, 'It is called by the Greeks Rhamnus, and is a flowering thorny plant, with spreading branches, having thorns, not curved like other briars, but straight, and larger leaves;' though the name of Rhamnus has been applied by modern botanists to a different genus.[2]

Of the erroneous statement made by Herodotus respecting the use of wheat, I have already spoken; and have shown that wheat and barley were abundantly cultivated in every part of Egypt. The former was cut in about five, the latter in four months;[3] the best quality, according to Pliny, being grown in the Thebaïd.[4] The wheat, as at the present day, was all bearded, and the same varieties doubtless existed in ancient as in modern times;[5] among which may be mentioned the seven-eared quality described in Pharaoh's dream.[6] It was cropped a little below the ear[7] with a toothed sickle, and carried to the threshing-floor in wicker baskets upon asses,[8] or in rope[9] nets, the gleaners following to collect the fallen ears in hand-baskets. The rope net, answering to the *Shenfeh* of modern Egypt, was borne on a pole by two men; and the threshing-floor was a level circular area[10] near the field, or in the vicinity of the granary,[11] where, when it had been well swept,[12] the ears were deposited, and cattle were driven over it to tread out the grain. While superintending the animals employed for this purpose, the Egyptian peasant, as usual both in ancient and modern times, relieved his labours by singing; and the ingenious Champollion[13] found in a tomb at Eileithyia a song of the threshers, written in hieroglyphics over oxen treading out the grain, of which he gives this translation:—'(1) Thresh for yourselves (twice repeated[14]), (2) O oxen, (3) thresh for yourselves (twice) (4) measures for yourselves, (5) measures for your masters;' similar to which may be found other songs in the sculptured tombs[15] of Upper Egypt.

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[1] Plin. xxiv. 14.

[2] Linnæus gives the name of *Rhamnus Spina Christi* to a different plant; and the Nebeca or Nebk, the Zizyphus, and others of this kind come under the general denomination of Rhamnus. There appears to be some confusion between the Lycium and the Rhamnus.

[3] Diodor. i. 36: 'They return after four or five months to cut the corn.' Pliny (xviii. 7) says barley in the 6th and wheat in the 7th month. [4] Plin. xviii. 18.

[5] 'General View of Egypt,' p. 261.

[6] Gen. xli. 22.

[7] Job xxiv. 24: 'Cut off as the tops of the ears of corn.'

[8] Woodcut No. 472, *figs.* 4 and 5.

[9] Woodcut No. 471, *figs.* 5 and 7.

[10] Those of the Romans were paved, or more usually formed of clay, well laid down and smoothed by rollers. (Virg. Geor. i. 178.)

[11] As with the Romans. (Colum. i. 6.)

[12] Matthew iii. 12.

[13] 'Lettres sur l'Égypte,' 11th and 12th letters, pp. 146, 196.

[14] This sign of twice occurs at *a* and *b*, woodcut No. 473.

[15] Rosellini, vol. i. part ii. p. 311.

A certain quantity was first strewed in the centre of the area, and when this had been well triturated by the animals' feet, more was added by means of large wooden forks, from the main heap

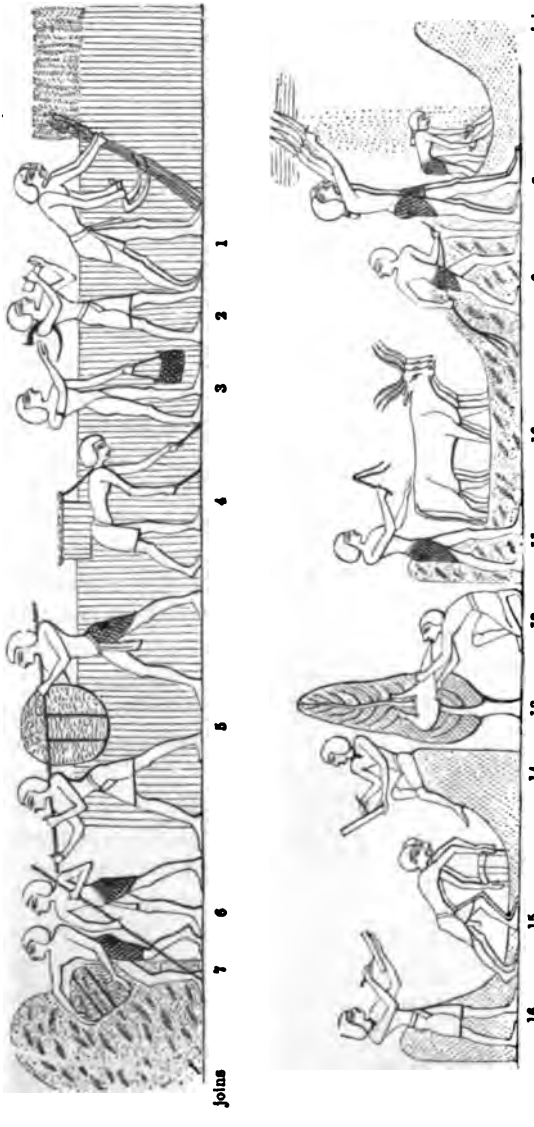


Fig. 1. The reapers. 2. A reaper drinking from a cup. 3, 4. Gleaners: the first of these asks the reaper to allow him to drink. 5. Carrying the ears in a rope basket; the length of the stubble showing the ears alone are cut off. 8. Winnowing. 10. The *fellahs*, answering to our threshing. 12 drinks from a water-skin suspended in a tree. 14. Scribe, who notes down the number of bushels measured from the heap. 16 checks the account by noting those taken away to the granary.

Harvest scene.

Thebes.

No. 471.

raised around and forming the edge of the threshing-floor; and so on till all the grain was trodden out. This process was called

by the Latins *tritura*,[1] and was generally adopted by ancient as by some modern people. Sometimes the cattle were bound together by a piece of wood or a rope fastened to their horns, in order to force them to go round the heap and tread it regularly, the driver following behind them with a stick.[2]

The *tritura*.

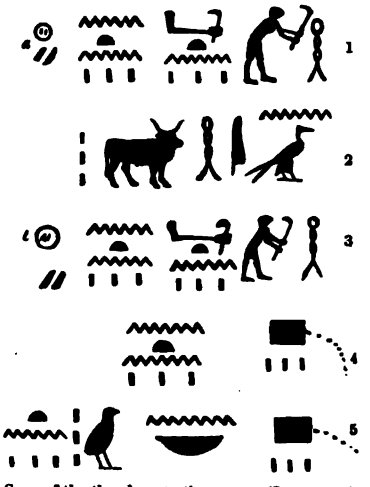
Fig. 1. The steward, or owner of the land.
2 throws the ears of wheat into the centre, that the oxen may pass over them and tread out the grain.
3. The driver.
4 brings the wheat to the threshing-floor, in baskets carried on asses.
The oxen are yoked together that they may walk round regularly.

No. 472.

After the grain was trodden out, they winnowed it with wooden shovels; it was then carried to the granary in sacks, each containing a fixed quantity, which was determined by wooden measures, a scribe noting down the number as called by the teller who superintended its removal. Sweepers with small hand-brooms were employed to collect the scattered grain that fell from the measure; and the 'immense heaps of corn' mentioned by Diodorus,[3] collected from 'the field which was round about every city,'[4] fully accord with the representation of the paintings in the tombs,[5] and with those seen at the present day in the villages of the Nile. Sometimes two scribes[6] were present, one to write down the number of measures taken from the heap of corn, and the other to check them, by

[1] Sometimes by horses. Plin. xvii. 30. Virg. Georg. iii. 132.
[2] Woodcut No. 472.
[3] Diodor. i. 36.
[4] Gen. xli. 48.
[5] Woodcuts No. 471 and No. 474.
[6] Woodcut No. 471

entering the quantity removed to the granary; but the office of the latter was probably to take account of the sacks actually housed: and this shows how necessary they considered it to guard against the artifices of a cunning people, and how much the refinements of civilisation had tended, as is commonly the case, to substitute deception for the original simplicity of an infant state. Herodotus[1] describes the Egyptian mode of treading out the grain by oxen, in which he is fully borne out by the sculptures of the tombs; and these inform us that they occasionally, though rarely, employed asses for the same purpose. This was also the custom of the Jews, and, like the Egyptians, they suffered the ox to tread out the corn unmuzzled, according to the express order of their lawgiver.[2] In later times, however, it appears that the Jews used 'threshing instruments;' though, from the offer made to David by Ornan, of 'the oxen also,' and the use of the word *dus*, 'treading,' in the sentence 'Ornan was *threshing* wheat,'[3] it is possible that the tritura is here alluded to, and that the threshing instruments only refer to the winnowing shovels, or other implements used on those occasions: though the 'new sharp threshing instrument having teeth,' mentioned in Isaiah,[4] cannot fail to call to mind the *noreg*, or corn drag, of modern Egypt, which the Hebrew name *moreg* so closely resembles; and the same word is applied to the 'threshing instruments'[5] of Ornan. The Jews, like the Greeks,[6] bound up the wheat, when cut, into sheaves;[7] but this was not the usual custom of the Egyptians, who were generally contented to put it into baskets or rope nets, and to carry it loose to the threshing-floor. The same was done by the Romans; and they either cut down the corn to the roots, or culled the ears with



Song of the threshers to the oxen. (See p. 418.)
No. 473. *Ethiopia.*

[1] Herodot. ii. 14.
[2] Deut. xxv. 4. Ælian says that, to prevent the oxen eating the grain and straw, they used in old times to rub their mouth with manure. (Hist. An. iv. 25.)
[3] 1 Chron. xxi. 20 and 23.
[4] Isaiah xli. 15.
[5] 1 Chron. xxi. 23, *moregim*.
[6] Hom. Il. Σ, 550.
[7] This ancient custom is mentioned in Genesis xxxvii. 7; Levit. xxiii. 10; Deut. xxiv. 19, &c.

a toothed sickle, gathering the straw afterwards,[1] or burning it for manure.[2]

The modern Egyptians cut the wheat close to the ground,—

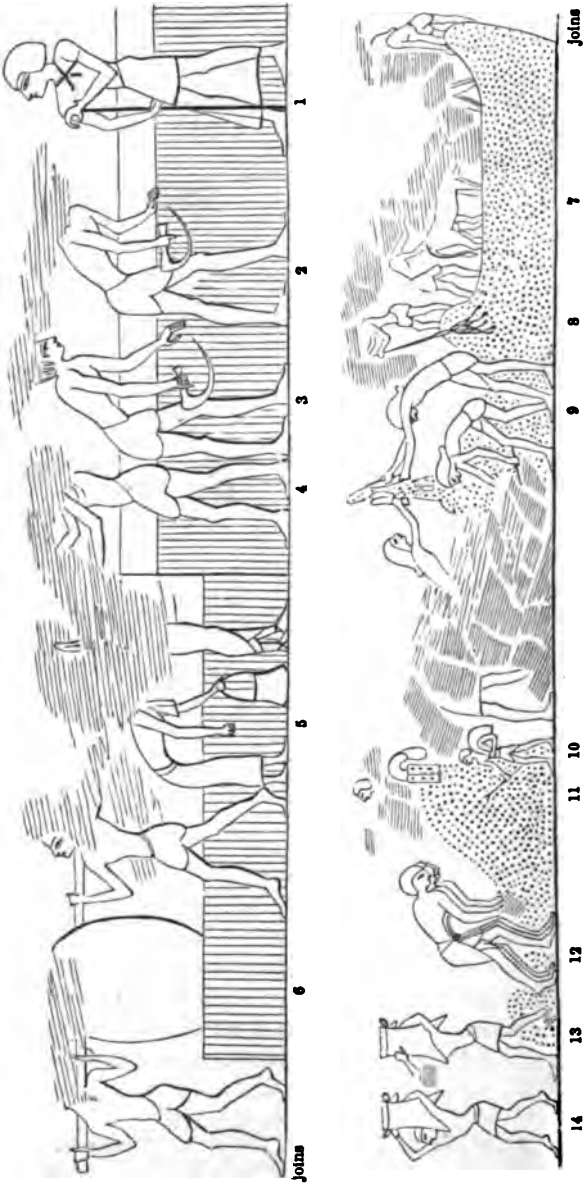


Fig. 1. The steward. 2, 3. Reapers. 5. A woman gleaner. 6. Carrying the wheat in the usual rope net. 7. The triturn. 9. Winnowers. 11. The scribe. 13, 14. Carrying the grain to the granary in sacks.
The continuation of this scene, beyond *fig.* 14, is given in woodcut No. 142, vol. i. p. 371.

Harvest scene.

No. 474. *Thebes.*

[1] Colum. ii. 21.

[2] Virg. Georg. i. 84.

barley and *doora* being plucked up by the roots,—and having bound it in sheaves, carry it to a level and cleanly-swept area near the field, in the centre of which they collect it in a heap; and then, taking a sufficient quantity, spread it upon the open area, and pass over it the *noreg* drawn by two oxen: the difference in the modern and ancient method being that in the former the *noreg* is used, and the oxen go round the heap, which is in the centre, and not at the circumference, of the threshing-floor. Some instances, however, occur of the heap being in the centre, as at the present day, as in the accompanying cut.

Fig. 1. Raking up the ears to the centre. 2. The driver. 3. Winnowing with wooden shovels.

The *noreg* is a machine consisting of a wooden frame, with three cross bars or axles, on which are fixed circular iron plates, for the purpose of bruising the ears of corn and extracting the grain, at the same time that the straw is broken up into small pieces; the first and last axles having each four plates, and the central one three: and at the upper part is a seat on which the driver sits, his weight tending to give additional effect to the machine.[1]

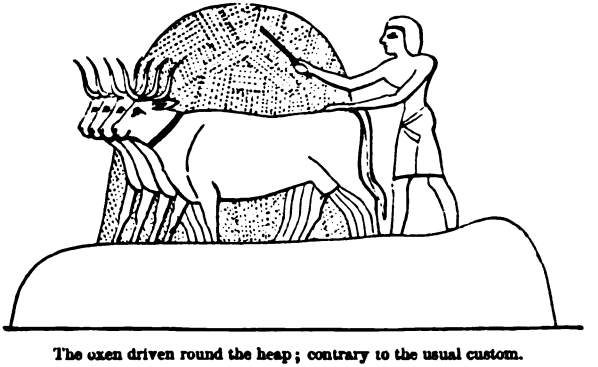
[1] In the endorsement of one of the Anastasi Papyri (Select Papyri, pl. clvi.) there is an account of the reaping and housing of the corn in the granary, on the 4th of the month Choeak. The corn was threshed, *hi-ten*, on the 26th Paophi, and put into sacks, *aat*, or the granary, on the 15th Athyr, a month afterwards. The contents were measured on the 3rd and 12th Choeak, the next month, and gave a total of 332 bushels. A chronological deduction has been attempted to be drawn from this, on the hypothesis that the word *hi-ten* means 'inundation,' and that it took place in the reign of Meneptah. (Goodwin, in 'Zeitschrift für ägyptische Sprache,' 1867, pp. 57, 58.) In the 30th

The *tribulum*,[1] which was sometimes used by the Romans, appears not to have been very dissimilar, as we learn from Varro,[2] who describes it as 'a frame made rough by stones or pieces of iron, on which the driver, or a great weight, was placed; and this

No. 476. Wheat bound in sheaves. Thebes.

Fig. 1, reaping. 2, carrying the ears. 3, binding them in sheaves, put up at *fig.* 4.

being drawn by beasts yoked to it, pressed out the grain from the ear.' While some were employed in collecting the grain and depositing it in the granary, others gathered the long stubble from the field, and prepared it as provender to feed the horses and cattle; for which purpose it was used by the Romans,[3] as by



No. 477. The oxen driven round the heap; contrary to the usual custom. Thebes.

the modern Egyptians. They probably preferred reaping the corn close to the ear, in order to facilitate the trituration; and afterwards cutting the straw close to the ground, or plucking it by the roots, they chopped it up for the cattle; and this, with dried clover, the *drees* of modern Egypt, was laid by for autumn,

year of Amenophis III. the corn was brought into the granaries on the 1st of Pachons. (Prisse, 'Monuments,' pl. xxix. and xlii.) —S. B.

[1] Virg. Georg. i. 164.
[2] De Re Rustica, i. 52.
[3] Plin. xviii. 30.

when the pastures being overflowed by the Nile, the flocks and herds were kept in sheds or pens on the high grounds, or in the precincts of the villages.[1]

The straw was doubtless cut up, as at the present day, by some contrivance answering to our hay knife, and cleansed from the earth, dust, or other impurities, previous to use; being 'winnowed with the shovel, and with the fan,' in the manner mentioned by Isaiah,[2] when speaking of 'provender' given to cattle. This custom of feeding some of their herds in sheds accords with the scriptural account of the preservation of the cattle, which had been 'brought home' from the field; and explains the apparent contradiction of the destruction of '*all* the cattle of Egypt' by the murrain, and the *subsequent* destruction of the cattle by the hail;[3] those which 'were in the field' alone having suffered from the previous plague, and those in the stalls or 'houses' having been preserved. An instance of stall-fed oxen from the sculptures has been given in my account of the farmyard and villas of the Egyptians.

The first crop of wheat having been gathered, they prepared the land for whatever produce they next intended to rear; the field was ploughed and sowed, and, if necessary, the whole was inundated by artificial means, as often as the quality of the crop or other circumstances required.[4] The same was repeated after the second and third harvests, for which, as I have already observed, the peasant was indebted to his own labours in raising water from the Nile,—an arduous task, and one from which no showers relieved him throughout the whole season. For in Upper Egypt rain may be said never to fall, five or six slight showers that annually fall there scarcely deserving that name; and in no country is artificial irrigation so indispensable as in the valley of the Nile.

Pomponius Mela calls Egypt 'terra expers imbrium;' and Proclus says if showers fell in Lower Egypt they were confined to that district, and heavy rain was a prodigy in the Thebaïd. Herodotus indeed affirms[5] that rain at Thebes portended some great calamity, and the conquest of Egypt by the Persians was thought to have been foretold by this unusual phenomenon at that place. In Upper Egypt showers only occur about five or six times in the year, but every fifteen or twenty years heavy

[1] Diodor. i. 36.
[2] Isaiah xxx. 24. Conf. Matt. iii. 12.
[3] Exod. ix. 6 and 19, *et seq.*
[4] Pliny, lib. xvii. 18.
[5] Herodot. iii. 10.

rain falls there, which will account for the deep ravines cut in the valleys of the Theban hills, about the Tombs of the Kings; in Lower Egypt rain is more frequent; and in Alexandria it is as abundant in winter as in the South of Europe. These ravines, and the precautions taken to protect the roofs of the temples at Thebes against rain, show that it fell there of old as now; but a continuation of heavy rain in Upper Egypt, or even at Cairo, for two or three days, would be considered a great wonder, and would cause many houses to fall down, as in 1823.[1] The Eastern desert, between the Nile and the Red Sea, where the mountains are higher, is frequently visited by heavy rain and thunderstorms in the winter, though the climate is drier than the valley of the Nile; and every four or five years the torrents run down to the Red Sea on one side and to the Nile on the other. In less than a month's time after this the beds of those torrents are covered with green herbs and numerous small flowers, and the Arabs take their flocks to graze there till the Khamseen winds and the hot sun of May have dried them up, and nothing remains except a few acacia-trees and the usual hardy shrubs of those arid districts. There are scarcely any springs in the valley of the Nile, and the few found there are probably caused by the filtration of the Nile-water through the soil.

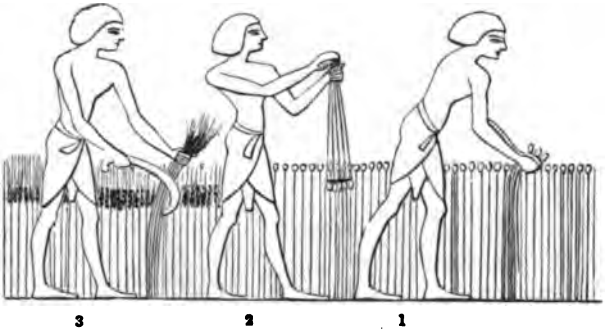
In many instances, instead of corn they grew clover, or leguminous herbs, which were sown as soon as the water began to subside, generally about the commencement of October; and at the same time that corn or other produce was raised on the land just left by the water, another crop was procured by artificial irrigation. This, of course, depended on the choice of each individual, who consulted the advantages obtained from certain kinds of produce, the time required for their succession, or the benefit of the land: for though no soil recovers more readily from the bad effects arising from a repetition of similar crops, through the equalising influence of the alluvial deposit, it is at length found to impoverish the land; and the Egyptian peasant is careful not to neglect the universal principle in husbandry, of varying the produce on the same ground.

Besides wheat, other crops are represented in the paintings of the tombs; one of which, a tall grain, is introduced as a production both of Upper and Lower Egypt.[2] From the colour, the

[1] Conf. Exod. ix. 18, where the hailstorm is not said to have been the only one, but such as was unlike any before it in Egypt.

[2] At Thebes, Eileithyia, Beni-Hassan, and Saqqára.

height to which it grows, compared with the wheat, and the appearance of a round yellow head it bears on the top of its bright green stalk, it is evidently intended to represent the *doora*, or *Holcus Sorghum*. It was not reaped by a sickle, like the wheat and barley, but men, and sometimes women, were employed to pluck it up; which being done, they struck off the earth that adhered to the roots with their hands, and having bound it in sheaves, they carried it to what may be termed the threshing-floor, where, being forcibly drawn through an instrument armed at the summit with metal spikes, the grain was stripped off, and fell upon the well-swept area below,—a satisfactory illustration of which is given in one of the agricultural scenes of a tomb at



3 2 1

No. 478. Gathering the *doora* and wheat. *Thebes.*

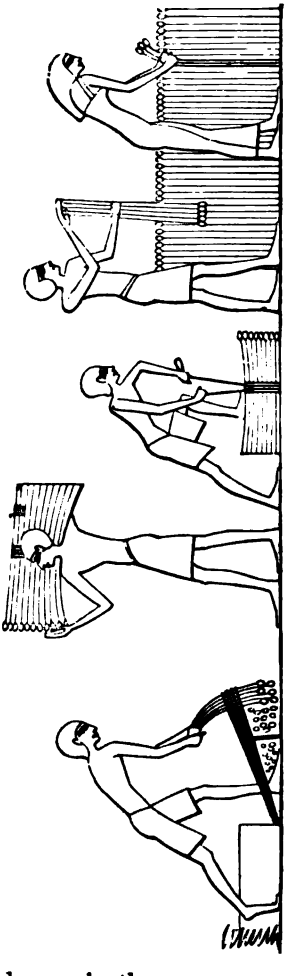
Fig. 1, plucking up the plant by the roots.
2, striking off the earth from the roots.
3, reaping wheat or barley.

Eileithyia in woodcut No. 479. Much flax was cultivated in Egypt, and the various processes of watering it, beating the stalks when gathered, making it into twine, and lastly into a piece of cloth, are represented in the paintings. I have already noticed them in the preceding part of this work, as well as the difficulty presented by the name Byssus.

At the end of summer, the peasant looked anxiously for the return of the inundation, upon which all his hopes for the ensuing year depended. He watched with scrupulous attention the first rise of the river; the state of its daily increase was noted down and proclaimed by the curators of the Nilometers at Memphis and other places; and the same anxiety for the approaching inundation was felt as on each preceding year.[1]

[1] No *doora* has been found in the tombs, which is remarkable, as corn and barley are, nor has it been recognised as mentioned in the texts and inscriptions. Straw, however, supposed to be of *doora*, has been found.—S. B.

About the middle of June, a gradual and continuous increase of the Nile was already seen, even as low as the vicinity of Memphis; 'its first rise being perceived,'[1] at the Cataracts, about the end of May, or the beginning of June; and a change from the previous clearness of the stream was soon observed in its red and turbid state, caused by the rains from the mountains of Abyssinia.[2] It then assumed a green appearance;[3] and during this period its water being deemed unwholesome, a supply previously laid up in jars was used until it had re-assumed its turbid but wholesome red colour. This explains the remark of Aristides,[4] that 'the Egyptians are the only people who preserve water in jars, and calculate its age as other nations do that of wine;' and the reason for adopting water jars as emblems of the inundation (on the authority of Horapollo[5] and the sculptures) may probably be derived from this custom of laying up the pure water of the Nile in jars, about the season, or at the first approach, of the inundation; though the calculation of the age of the water must be considered a Greek exaggeration.



No. 472.

Fig. 1. Woman plucking up the plant by the roots. 2, striking off the earth from the roots after he has plucked it up. 3, binding it into a sheaf. 4, carrying it to the area. 5, stripping off the grain by drawing the head forcibly through an instrument furnished with metal spikes for the purpose.

It was perhaps this change in the appearance of the river which led the Egyptians to represent the god Nilus both of a red and a blue colour,—indi-

[1] Seneca, Nat. Quæst. iv. 2, p. 886.

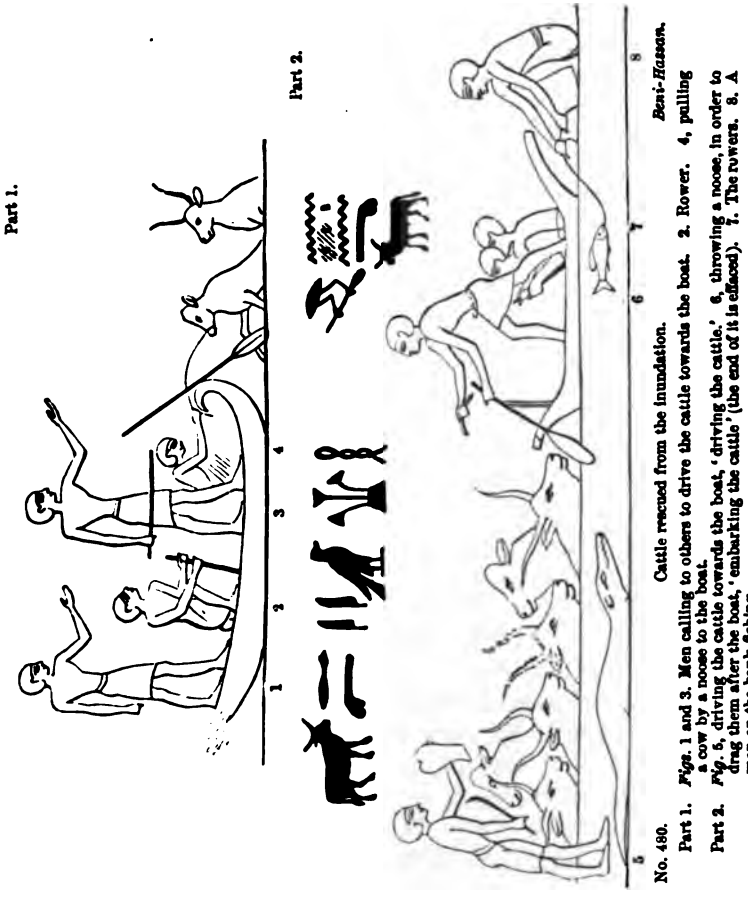
[2] Ammianus Marcellinus and others doubted the inundation being caused by rains in Ethiopia (xxii. 15, p. 334).

[3] Probably from passing through some lakes or marsh lands, whence green stagnant water mixed with the stream was brought down to Egypt.

[4] Orat. Egypt. vol. ii. p. 363.

[5] Horapollo, i. 21.

cating the river during the turbid state of the inundation, and the clearness of the low Nile. In the beginning of August the canals were again opened, and the waters once more overflowed the plain. That part nearest the desert, being the lowest level, was first inundated; as the bank itself, being the highest, was the last part



Part 1. *Figs.* 1 and 3. Men calling to others to drive the cattle towards the boat. 2. Rower. 4, pulling a cow by a noose to the boat.

Part 2. *Fig.* 5, driving the cattle towards the boat, 'driving the cattle.' 6, throwing a noose, in order to drag them after the boat, 'embarking the cattle' (the end of it is effaced). 7. The rowers. 8. A man on the bank fishing.

submerged, except in the Delta, where the levels were more uniform, and where, during the high inundations, the whole land, with the exception of its isolated villages, was under water. As the Nile rose, the peasants were careful to remove the flocks and herds from the lowlands; and when a sudden irruption of the water, owing to the bursting of a dyke or an unexpected and unusual increase of the river, overflowed the fields and pastures, they were seen hurrying to the spot, on foot or in boats, to rescue the

animals,[1] and to remove them to the high grounds above the reach of the inundation. Some, tying their clothes upon their heads, dragged the sheep and goats from the water, and put them into boats; others swam the oxen to the nearest high ground; and if any corn or other produce could be cut or torn up by the roots in time to save it from the flood, it was conveyed on rafts or boats to the next village. Guards were placed to watch the dykes which protected the lowlands, and the utmost care was taken to prevent any sudden influx of water, which might endanger the produce still growing[2] there, the cattle, or the villages. And of such importance was the preservation of the dykes, that a strong guard of cavalry and infantry was always in attendance for their protection; certain officers of responsibility were appointed to superintend them; large sums of money were annually expended for their maintenance and repairs; and in the time of the Romans, any person found destroying a dyke was condemned to hard labour in the public works or in the mines, or to be branded and transported to the Oasis. According to Strabo,[3] the system was so admirably managed, 'that art contrived sometimes to supply what nature denied, and, by means of canals and embankments, there was little difference in the quantity of land irrigated, whether the inundation was deficient or abundant.' If, continues the geographer, it rose only to the height of eight cubits, the usual idea was that a famine would ensue, fourteen being required for a plentiful harvest; but when Petronius was præfect of Egypt, twelve cubits gave the same abundance, nor did they suffer from want even at eight; and it may be supposed that long experience had taught the ancient Egyptians to obtain similar results from the same means, which, neglected at a subsequent period, were revived, rather than, as Strabo thinks, first introduced by the Romans.

In some parts of Egypt the villages were frequently liable to be overflowed, when the Nile rose to a more than ordinary height, by which the lives and property of the inhabitants were endangered; and when their crude brick houses had been long exposed to the damp, the foundations gave way, and the fallen walls, saturated with water, were once more mixed with the mud from which they had been extracted. On these occasions the blessings of the Nile entailed heavy losses on the inhabitants; and, as Pliny[4] observes, 'if the rise of the water exceeded sixteen cubits,

[1] Diodor. i. 36. Woodcut No. 480, and Vignette B, vol. i. p. 28.
[2] Strabo, xv. p. 487. [3] Ibid. xviii. 542. [4] Pliny, xviii. 18.

a famine was the result, as when it only reached the height of twelve.' In another place[1] he says, 'A proper inundation is of sixteen cubits; . . . in twelve cubits the country suffers from famine, and feels a deficiency even in thirteen; fourteen cause joy, fifteen security, sixteen delight; the greatest rise of the river to this period being of eighteen cubits in the reign of Claudius, the least during the Pharsalic war.'

From all that can be learnt respecting the rise of the Nile, it is evident that the actual height of the inundation is the same now as in former times, and maintains the same proportion with the land it irrigates, and that, in order to arrive at great accuracy in its measurement, the scales of the Nilometers ought, after certain periods, to be raised in an equal ratio, as may be seen by anyone who visits those of Cairo and Elephantine: for the bed of the river gradually rises from time to time; and the level of the land, which always keeps pace with that of the river, increases in a ratio of six inches in 100 years in some places (as about Elephantine), and in others less, varying according to the distance down the stream: the consequence and, indeed, the proof of which is, that the highest scale in the Nilometer at the island of Elephantine, which served to measure the inundation in the reigns of the early Roman emperors, is now far below the level of the ordinary high Nile; and the obelisk of Matareeh or Heliopolis, the colossi of the Theban plain, and other similarly situated monuments, are washed by the waters of the inundation, and imbedded to a certain height in a stratum of alluvial soil deposited around their base.

The continual increase in the elevation of the bed of the river naturally produced those effects mentioned by Herodotus and other writers, who state that the Egyptians were obliged from time to time to raise their towns and villages in order to secure them from the effects of the inundation; and that the same change in the levels of the Nile and the land took place in former ages as at the present day, is shown by the fact of Sabaco having found it necessary to elevate the towns throughout the country, which had been previously protected by similar means in the reign of Sesostris—an interval of about 600 years. This was done, says the historian of Halicarnassus, by the inhabitants of each place who had been condemned for great crimes to the public works. Bubastis was raised more than any other city; and the lofty mounds of Tel Basta, which mark its site, fully confirm

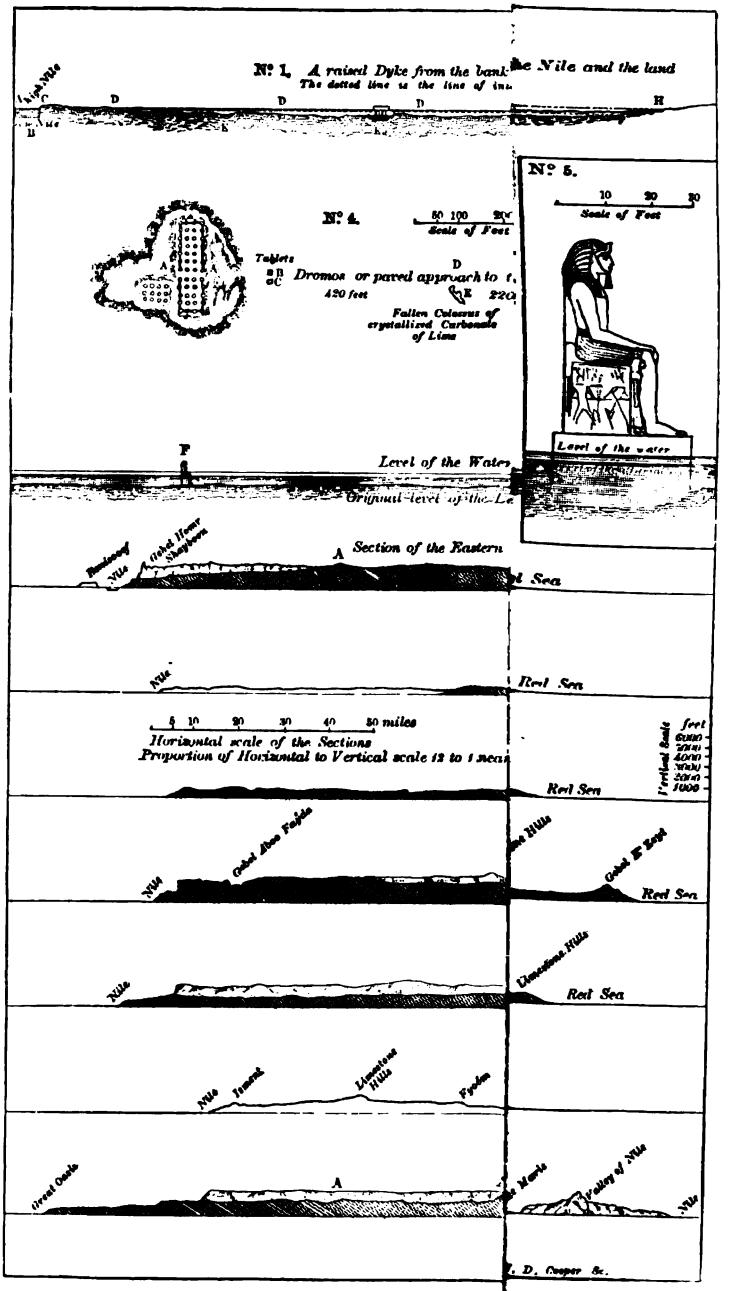
[1] Pliny, v. 9.

the observation of Herodotus, and show, from the height of those mounds above the present plain, after a lapse of 770 years, that 'the Ethiopian monarch elevated the sites of the towns much more than his predecessor Sesostris[1] had done,' when that conqueror employed his Asiatic captives in making the canals of Egypt.[2] I have already stated that the land about Elephantine has been raised about nine feet in 1700 years; at Thebes, about seven; and in a less degree towards the Delta and the mouths of the Nile: and I shall now endeavour to explain in what manner the elevations of the land and river have taken place, to compare the measures of the inundation in the ancient and modern Nilometers, and show what effect the alteration in the levels has had on the arable land of Egypt. In that part of Egypt lying to the S. of the Delta, the banks of the Nile are much more elevated than the land of the interior at a distance from the river, and are seldom quite covered with water even during the highest inundations. Little, however, projects above the level of the stream, and in some places the peasant is obliged to keep out the water by temporary embankments. This may be accounted for partly by the continued cultivation of the banks, which, being more conveniently situated for artificial irrigation, have a constant succession of crops; for it is known that tillage has the effect of raising land, from the accumulation of decayed vegetable substances, the addition of dressing, and other causes; and the greater depression of the plain in the interior is probably owing, in some degree, to the numerous channels in that direction, and to the effect of the currents which pass over it as the water covers the land; though they are not sufficient to account for the great difference between the height of the bank and the land near the edge of the desert, which is often twelve or fifteen feet, as may be seen from the respective heights of the dykes at those two points.[3]

These elevated roads, the sole mode of communication by land from one village to another during the inundation, commence on a level with the bank of the river, and, as they extend to the interior, become so much higher than the fields, that room is afforded for the construction of arches to enable the water to pass through them; though, generally speaking, bridges are only built on those parts where ancient or modern canals have lowered the levels sufficiently to admit of them. The general appearance

[1] Herodot. ii. 137. [2] Ibid. ii. 108 and 137. [3] See Proc. Geogr. Society.

PLATE XV.



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of the dykes may be illustrated by a section,[1] in which A is the surface of the Nile during the inundation; B, the level of the low Nile; C, the bank; D D, the raised dyke; E, the beds of canals over which bridges are built in the dyke; F, the *háger*, or slope of the desert, extending from the junction of the irrigated land at H to the limestone mountains, G.

This section is given as if the dyke were in one straight line east or west from the river; but they follow a tortuous course, visiting the various towns on their way, and serving as roads, as well as an impediment to the arbitrary overflow of the inundation: the general direction of a dyke, therefore, varying according to circumstances, may be represented as in the accompanying plate.[2] It is on a plain of about five miles in breadth. Some dykes are even more circuitous and indirect than this; but in all cases the principal care is to place them so as to oppose the greatest force to the largest body or pressure of water, and to offer the readiest means of communication from one village to another. I have already observed that the perpendicular elevation of the bed of the river, and the proportionate elevation of the water of the inundation, tend to increase the extent of the arable land of Egypt; and that there is now a larger tract of cultivable soil E. and W. from the river than at any previous period. This I shall endeavour to illustrate by a similar section,[3] in which it will be seen that if the Nile, rising from its ancient bed A B, inundated the country in the direction and at the elevation E F, it would, when raised to C D, its modern bed (the land being also raised in proportion to G), extend its inundation on the line G H to a far greater distance over the *háger*, or slope of the desert, and give an additional tract of cultivable land from F to H.

That this has actually taken place I have satisfactorily ascertained by excavations, and by observing the quantity of alluvial deposit accumulated round the base of ancient monuments, and by a comparison of the height to which the water now rises and formerly rose in the Nilometer of Elephantine. In the plain of Thebes are some colossal statues of Amenophis III., of which two still occupy their original site, and one of these has long been known under the name of 'the vocal Memnon.' They stood on either side of the *dromos* leading to a temple built by that Pharaoh, and at intervals between them and the temple were other colossi, statues, and tablets, long since thrown down or mutilated, and nearly covered by the alluvial deposits of the

[1] Plate XV. No. 1. [2] No. 2. [3] No. 3.

inundation. Their relative position may be better understood from the plan,[1] where it will be seen that before the temple, A, are the tablets, B C, and 420 feet beyond are the fragments of a colossus, E; then at a distance of 220 feet are another fallen colossus, G, and, as a pendant to it, a group of comparatively small figures, cut out of a single block, at F; the colossi, H I, which are still standing, being 300 feet farther, and appearing to terminate the *dromos*.

The temple is now surrounded by alluvial soil, and the water and mud of the inundation extend to the distance of 600 feet behind it. But when erected, about the year 1420 B.C., not only the body of the temple, but the *dromos*, or paved road leading to it, as well as the base of the colossi, H I, were above the reach of the inundation; and the statues at F, which are still erect in their original position, were exposed to view, though now buried to their waist in the alluvial deposit.

Indeed, I believe this *dromos* to have been a continuation of the 'Royal street' mentioned in some papyri found at Thebes, which, crossing the western portion of the city, communicated, by means of a ferry, with the temple of Luxor, founded by the same Amenophis, on the other side of the river; as the great *dromos* of Sphinxes, connecting the temples of Luxor and Karnak, formed the main street in the eastern district of Thebes. The colossi, H I, are 47 feet[2] high, with the pedestal 60; but the alluvial deposit has accumulated around them to the height of from 6 feet 10 inches to 7 feet, so that they now stand only 53 feet above the plain.[3] This was ascertained by excavating to the base of the pedestal; and having penetrated beneath it, I found that it stood, not on alluvial ground, but on the soil of the desert, which was paved with sandstone blocks, serving as substructions for the colossus and the *dromos*. The lower side of the pedestal had not been cut smooth, but was left of a round irregular shape, extending 3 feet 10 inches below the level of the paved *dromos*; but that was of little importance: the main point was to ascertain whether the slope of the *dromos* corresponded with that of the desert; and this I proceeded to examine. I therefore dug to the base of what I supposed to be part of a similar colossus at F, 300 feet behind the colossus H.[4] This, however, proved to be a group of

[1] Plate XV. No. 4.

[2] By sextant I make the western colossus 47 ft.; and the other, by actual measurement, 47 ft. 9 in. See Plate XV. No. 5.

[3] The ground has sunk at the base, and the statue inclines a little to one side, so that it is difficult to ascertain the exact height of the pedestal. See Plate XV.

[4] Plate XV. No. 6.

statues—a circumstance particularly fortunate for my purpose, as they were found to be standing in their original position. Their total height was 8 feet 1 inch from the base of the pedestal to the top of the shoulder, the part above that being broken off; they projected 2 feet 10 inches above the level of the alluvial deposit, so that it had accumulated in this part only 5 feet 3 inches. This satisfactorily settled the question I had in view, and gave, in a distance of 300 feet, a difference of 1 foot 7 inches to 1 foot 9 inches, being an average of 20 inches in 300 feet, or a decreasing ratio of 1 inch in 15 feet for the talus of the sloping desert plain on which they were placed. According to this ratio, the basement of the temple itself should stand very little below the level of the alluvial deposit, which, indeed, agrees with fact; though, as may be supposed, the slope of the desert is not quite so uniform as to accord with the mathematical calculation of an uninterrupted line. It suffices for our purpose to have ascertained that this gradual slope does exist, and that the colossi and the temple standing upon it are buried in alluvial deposit in an inverse ratio as they approach the edge of the desert; and the only inference necessarily is, that the alluvial soil now reaches farther inland towards the desert than it did when those monuments were erected. We do not know how far the outermost colossi were, at that time, beyond the line of the alluvial deposit: all we can conclude is, that they were *above* its level, and that the *dromos*, or paved street, was also *above* the highest water-mark; but if it is out of our power to fix any exact point from which to calculate the annual increase of the perpendicular stratum of land, of this we may at least be certain—that all the deposit now existing between the colossi, H I, and the edge of the desert behind the temple, a total distance of 1900 feet, has been brought there since the reign of the third Amenophis, or within a period of 3260 years. What has now been said, fully, I trust, demonstrates these propositions—that the perpendicular rise of the bed of the Nile extends the inundation and alluvial deposit much farther in a horizontal direction E. and W. at the present day than at any previous period; that this cause has always been in operation; and that, therefore, a wider extent of irrigated land now exists than in former times. I do not, however, pretend that the same quantity of land is cultivated as formerly; this must always depend on the population, the energies of the people, the system followed by the government, and other accidental circumstances: but it is not the fault of the river, nor from any deficiency in the benefits it used to bestow

on the soil of Egypt, that much land is left fallow, and overgrown with noxious weeds; and the modern inhabitants might profit by the same means of cultivating the edge of the desert by artificial irrigation as their predecessors, if Egypt only possessed the advantages of population, a favourable system of agriculture, and a wise government. I have made the same observations respecting the extent of the land in other parts of Egypt, all confirming what I have stated, as might be reasonably expected, since the same causes necessarily produce the same effects; and I now proceed to show the origin of those erroneous notions which proclaim that the drifting sands have curtailed the limits of the arable land of Egypt, and that the desert constantly encroaching on the soil threatens to overwhelm the valley of the Nile, and already counteracts the beneficial effects of the inundation.

In some parts of Egypt, as at Behnesa, at Kerdassy, a little to the N. of the Pyramids, at Werdan, and at a few other places, the sand of the Libyan desert has been drifted into the valley, and has encumbered the land with hillocks and downs, spreading itself over the fields near the edge of the desert, and sometimes burying trees and buildings to the depth of several feet. This has been particularly the case about Behnesa; and Denon, who visited it and witnessed the effect of the sand in that quarter, spread the alarm of its invasion, which has been magnified into the annihilation of the arable land of Egypt. But this evil is only partial, and, as M. Reynier observes, in a memoir upon the agriculture of Egypt, published in the great French work,[1] 'Though many have spoken of the encroachments of the sand upon the cultivable soil, it appears to be much less considerable than is supposed; for otherwise many places indicated by ancient writers to have been on the borders of the desert would now be distant from the irrigated land, and the canal of Joseph, after so many ages of bad government, would have been long since filled up.' In some places, he adds, this has happened, as at Werdan, in the province of Gizeh, where the sand has advanced to the distance of a league; but the position of the place—at the outlet of a gorge in the Libyan Mountains[2]—is, perhaps, partly the

[1] 'Mémoires sur l'Égypte,' vol. iv. p. 5.

[2] [The only mountain where sand abounds is certainly the African range; and though there are some lofty drifts in one place on the opposite side, just below the modern Suez road, the eastern part of the valley of the Nile is generally free from it. It does not, however, encroach on the W. to the extent that some have imagined; and if downs of sand have been raised here and there along the edge of the cultivated land, the general encroachment is greatly in favour of the alluvial deposit. In Ethiopia the sand has invaded the W. bank, but this is owing to the fall in the level of the Nile.—G. W.]

cause of this—an opinion which perfectly coincides with my own observations. In many places where valleys open upon the plain, the sand is found to accumulate, and sometimes to form drifts upon the land, which, when no precautions are taken by planting the bushy tamarisk, increase so far as to prevent the overflow of the Nile from covering a portion of the previously-irrigated soil; but these incursions of sand are only partial, and in particular spots, bearing a very small proportion to the whole valley of Egypt; and it must be remembered that the desert, or gradual slope of the *háger*, between the limestone range and the arable land, is not a plain of moving sand, as some have imagined, but is composed of clay and stony ground mixed with a proportion of sand, or an old detritus of the neighbouring rocks. On the eastern side of the valley very few sand-drifts are to be met with, except those seen from Cairo, beyond Heliopolis and the Birket el Hag, on the Suez road; but these do not encroach upon the arable land, from which they are far distant; and since I have shown that on the W. or Libyan side also, the places where sand encumbers the valley are partial, it may be readily imagined how slight an effect these must have compared with the whole extent of the country. In the Delta, the only sandy places of consequence are here and there on the Libyan shore and on the coast of the Mediterranean, bearing an imperceptible proportion to the whole superficies of that province; and, indeed, the sand on the coast is not worthy of notice, nor can it be attributed in any way to the advance of the desert upon the land of Egypt.

In many countries—as in France, about Dunkerque, the Landes, and other places; in Scotland, about Nairn; and in several parts of Europe—sand-drifts occur of great size and extent: but the same theories are not formed upon their aggressions; and we have in this a proof how far opinions are influenced by the name and by the idea of a desert. I am far from affirming that no encroachment of the sand takes place; my arguments are only intended to show that, taking into consideration the relative advance of the sand and of the alluvial deposit, the balance is greatly in favour of the latter; and the result is that, whatever partial injury the sand may have it in its power to inflict on certain spots, the extent of the land is constantly increasing, and the number of square miles of inundated arable soil is much greater now than at any previous period. I must also make some remarks upon the nature of the desert, which will be found to differ much

from received opinion, as the simple mention of ranges of primitive mountains reaching an elevation of 5000 feet will suffice to show. I allude now to the desert lying between the Nile and Red Sea; but in order to give a just notion of this tract, and the nature of the mountains in various parts, I must refer to Plate XV., and to the accompanying sections in different latitudes.

The leading characteristic of the Eastern desert, particularly in the northern part, is its gradual ascent from the valley of the Nile to a certain distance eastward, where you arrive at a plain nearly level, and of some extent, from which all the valleys or torrents running in a westerly direction empty themselves into the Nile, and those to the eastward into the Red Sea, following a descent in the opposite direction to the coast. A section taken E. and W., about latitude 29°, will explain the appearance of the desert in that part.[1] These are all limestone mountains. The ascent from the Nile to A is about 30 miles; the high plain, A B, is about 16 miles broad; the descent then commences towards the Red Sea, which is about 50 miles distant. In that part where the primitive range commences and joins the secondary hills, about latitude 28° 26′, the section E. and W. presents the appearance given in the next figure of the plate.[2] In latitude 28° 10′, passing by the lofty Gharib, which is the highest peak in this desert, having an elevation of about 6000 feet, the section is of a different character.[3] Another section is taken in latitude 28° from Gebel E'Zeyt, on the Red Sea, to Gebel Aboo Faýda on the Nile.[4] The last of those in the Eastern desert, in latitude 27°,[5] crosses the great range of the Ummumfaýah, which is about 5000 feet high; from a comparison of which it appears that this desert has one general character in its levels from the Nile to the Red Sea. A little above Esné, about latitude 25° 10′, the sandstones approach the Nile on the east bank; a little farther south they cross the river, near Edfoo, whence they continue on either bank; and at Silsilis are the quarries from which the sandstone used in the temples of Egypt was taken. Fourteen miles above Ombos, and on the eastern bank, the granites appear; and at E'Sooan, 14 miles farther S., they cross the river. Amidst these are the cataracts, a succession of rapids, of which no single fall is more than about 5 feet.

In Nubia the valley is very narrow; the rocks of the eastern and western mountains often coming close to the river, and leaving

[1] Plate XV. No. 7. [2] No. 8. [3] No. 9. [4] No. 10. [5] No. 11.

little or no space for the deposit of alluvium: in other places on the Libyan side the sand covers the whole level space between the hills and the bank; and the character of the country between the First and Second Cataract is totally different from Egypt. The river about Kalabshe rises between 30 and 40 feet during the inundation; and after it has subsided, in February, the stream runs at the rate of two or three knots an hour. But I return to the deserts of Egypt.

In going to the Western or Libyan desert, in the direction of the Oasis Parva, one road passes by the Fyoóm; which province is considerably lower than the valley of the Nile, and the Lake Mœris is about 100 or 120 feet below the level of the banks at Benisooef. I have given a section across that part of the country from the Nile to the mountain range lying behind the Lake Mœris,[1] and thence to the Oases; from which it is evident that on leaving the Fyoóm in a southerly direction, or in going from the Nile westward, you gradually ascend till you arrive at the summit of an elevated plain, which continues on a level, or with slight undulations, for a considerable distance, and forms the extensive table-land of this part of Africa. The Oases and other valleys are depressions in this lofty plain; and on descending to them, you find the level space or plain of the Oasis itself similar to a portion of the Valley of Egypt, surrounded by steep cliffs of limestone, at some distance from the cultivated land, which vary in height in the different Oases. Those of the Southern Oases are much higher, and consequently the level of those Oases is much lower than of the Oasis Parva, as may be seen from the last section, taken N. and S.[2]

From this it appears that the water of the Oasis Parva does not come directly from the Nile, and that we must look for the origin of its springs at a more southerly point. The mountains of the high plain are limestone; the low plain of the Oases is sandstone on clay; and it is from this last that the water rises, and by this it is retained. The limestone mountains of the Thebaïd rest in like manner on clay; and thus we may conclude that the water is conveyed from some point to the south of, and at a greater elevation than, the Oasis, its escape to the surface taking place wherever the limestone superstratum is removed; and that a continuation of the same bed of clay conducts it northward to the Oasis Parva—occasional opportunities being

[1] Plate XV. No. 12. [2] No. 13.

afforded it for rising, as at Farafreh and other places on the way. Though I have represented the mountains as if the table-land of their summit were perfectly level, in order to show the comparative depressions of the Oases, it is not to be supposed that they are perfectly horizontal: if so, those of Lower Egypt would be more elevated than in the Thebaïd, which is not the case; the mountains of Thebes being 1200 feet above the Nile, which is a much greater elevation than any in the latitude of Cairo. From what has been said, it is evident that the Oases are not fertile spots in the midst of a sandy plain, but depressions in the lofty table-land of Africa, where, by the removal of the superincumbent limestone strata, the water has the power of rising to the surface; nor is the desert a dreary plain of sand which has overwhelmed a once fertile country, whose only traces are the isolated gardens of the Oases, where the traveller runs a risk of being overwhelmed by sand, as the army of Cambyses was reported to have been.[1] The notion is of old date, from Herodotus to the modern traveller who confines his experience to the valley of the Nile; and if Strabo were listened to, it would require some degree of courage to visit the site of Memphis, lest, as he observes, the imprudent stranger should expose himself to 'the danger of being overtaken by a whirlwind on his way.'[2] Strabo, *like other travellers*, must have braved great dangers during his voyage; the ancients were alarmed at the sand and wondrous monsters; and we now often read of narrow escapes from the effects of a simoom: but however disagreeable this really is, and though caravans run the risk of losing their way if incautious enough to continue their route in its dense fog of dust, and consequently to perish in this waterless region, the very unpleasant death it has been reported to cause is an exaggeration; and, speaking from the experience of many a violent simoom in the most sandy parts of the desert, I can only say that it is bad enough without being exaggerated, but that it is much more frightful in a book of travels than in the country itself.

A remarkable feature in the Valley of Egypt, which must strike every one who crosses the edge of the alluvial land, is the line of demarcation between this and the desert, which is so strongly defined, that you may almost step with one foot upon the richest, and with the other on the most barren land; for, as

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[1] *Ammon*, *sand*, and the *dust* of the Pharaohs being united against it.
[2] Strabo, lib. xvii. p. 555.

Strabo says, all is sterile in Egypt where the Nile does not reach, but it only requires to be irrigated by the fertilising water of the river to become productive; as the flower of the female plant only awaits the pollen of the male to cause it to produce—an idea analogous to the fable of Osiris (as the inundation) approaching the bed of Isis (the soil it irrigates), or more properly of Nephthys (the barren land), who also produced a son on being visited by Osiris.

Besides the land inundated by the Nile, the ancient Egyptians took into cultivation a considerable portion of the *háger*, or edge of the desert, which, being a light soil, consisting of clay mixed with sand or gravel, was peculiarly adapted for certain produce, particularly bulbous plants; and many with long fibrous roots were found to thrive in that soil. Those parts where a greater proportion of gravel prevailed were peculiarly adapted to the culture of the vine; and we are not surprised to find that the wines of Marea,[1] and other places situated at the confines of the desert, were superior in quality to those from the interior of the irrigated land. In some places, as in the Fyoóm, where little change has taken place in the appearance of the surface of the land, I have frequently observed the traces of former cultivation; even the vestiges of fields appear, with channels for water, far above the level of all modern canals; and in the vicinity of the Lake Mœris are several watercourses and canals, with the roots of vines and other trees, which are distant more than twelve from the nearest irrigated land. I do not pretend to affirm that these are actually of the early time of the Pharaohs; but they doubtless owe their origin to the system of cultivating the *háger* adopted by the ancient Egyptians, and this extensive culture of the vine is at least prior to the Arab invasion. Indeed, by the universal confession of the inhabitants themselves, no canals or cultivation have been maintained in this spot within the period of Moslem records; and tradition asserts that the province

[1] [The town of Marea stood near the lake to which it gave the name of Mareotis. It was celebrated for the wine produced in its vicinity, which appears to be included in the 'wine of the north country,' so often mentioned in the lists of offerings in the Egyptian tombs. Strabo says, 'in this district is the greatest abundance of wine,' which is confirmed by Athenæus. Virgil (Georg. ii. 91) mentions the white wines of the Mareotis, and the expression of Horace, 'Mareotic,' meaning '*Egyptian* wine,' points it out as the most noted of that country. Athenæus says, 'Its colour is white, its quality excellent, and it is sweet and light, with a fragrant bouquet, by no means astringent, and not affecting the head;' and Strabo gives it the additional merit of keeping to a great age. Athenæus considers it inferior to the Teniotic; and that of Anthylla appears to have been preferred to it and to all others.—G. W.]

of Fyoóm, which now contains about eighty villages, had once more than four times that number in the flourishing periods of the Pharaonic kings.

During the inundation, when the Nile had been admitted by the canals into the interior, and the fields were subjected to the fertilising influence of its waters, the peasantry indulged in various amusements which this leisure period gave them time to enjoy.[1] Their cattle were housed, and supplied with dry food, which had been previously prepared for the purpose; the tillage of the land and all agricultural occupations were suspended; and this season was celebrated as a harvest home, with games and recreations of every kind. They indulged in feasting and the luxuries of the table; games were celebrated in some of the principal towns, in which the competitors contended for prizes of cattle, skins, and other things suited to the taste or wants of the peasant, and some amused themselves with wrestling-matches, bull-fights, and gymnastic exercises, which, while they suited the habits of an active and robust people, contributed to invigorate them, and to prevent the baneful effects of indolence during a period of repose from the labours of the field. According to Julius Pollux,[2] the Song of Maneros was among those adopted by the Egyptian peasant; and this fabled personage was celebrated as the inventor of husbandry—an honour generally given to the still more fabulous Osiris. It is probable that many songs and games were appropriated to certain festivals; and this adaptation of peculiar ceremonies to particular occasions, and the aversion of the Egyptians for any change in the customs of their ancestors, are remarked by several ancient writers.[3] They had many festivals connected with agriculture and the produce of the soil, which happened at different periods of the year. In the month Mesoré, they offered the firstfruits of their lentils to the god Harpocrates, 'calling out at the same time, "The tongue is Fortune, the tongue is God;"'[4] and the allegorical festival of 'the delivery of Isis was celebrated immediately after the vernal equinox,'[5] to commemorate the beginning of harvest. 'Some,' says Plutarch, 'assimilate the history of those gods to the various changes which happen in the air during the several seasons of the year, or to those accidents which are observed in the production of corn in its sowing and ripening; "for," they observe, "what can the burial of Osiris more aptly signify than the first covering of the seed

[1] Diodor. i. 36. [2] Jul. Poll. iv. 7. [3] Herodot. ii. 79.
[4] Plut. de Isid. s. 68. [5] Ibid. s. 65.

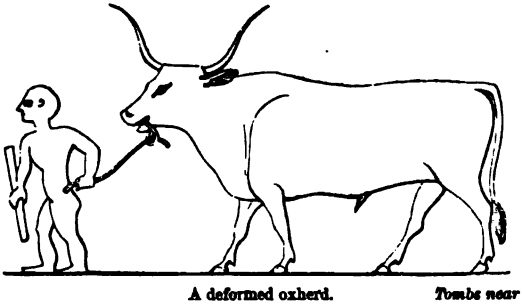
in the ground after it is sown? or his reviving and reappearing than its first beginning to shoot up? and why is Isis said, upon perceiving herself to be with child, to have hung an amulet about her neck on the 6th of the month Paophi, soon after sowing time, but in allusion to this allegory? and who is that Harpocrates whom they tell us she brought forth about the time of the winter *tropic*, but those weak and slender shootings of the corn, which are yet feeble and imperfect?"—for which reason it is that the firstfruits of their lentils are dedicated to this god, and they celebrate the feast of his mother's delivery just after the vernal equinox.' From this it may be inferred that the festival of the lentils was instituted when the month Mesoré coincided with the end of March; for since they were sown at the end of November, and ripened in about 100 or 110 days, the firstfruits might be gathered in three months and a half, or, as Plutarch tells us, 'just after the vernal equinox,' or the last week in March. It is not stated on what day of Mesoré this festival took place; we can, therefore, only arrive at an approximate calculation respecting the period when it was first instituted; which, supposing it to have fallen in the middle of the month, will carry it back 2650 years before our era, 330 years before the accession of Menes. 'On the 19th day of the first month (Thoth), which was the feast of Hermes,[1] they eat honey and figs, saying to each other, "How sweet a thing is truth!"'—a satisfactory proof that the month itself, and not the first day alone, was called after and dedicated to Thoth, the Egyptian Hermes; and another festival, answering to the 'Thesmophoria of the Athenians,' was established to commemorate the period when 'the husbandmen began to sow their corn in the Egyptian month Athor.'[2] Many of the sacred festivals of the Egyptians were connected with agriculture; but these I shall have occasion to notice under the head of their religious ceremonies.

I now proceed to another point connected with the occupations of the peasantry—the care and rearing of animals. The rich proprietors of land possessed a large stock of sheep, goats, and cattle; gazelles, and other wild animals of the desert, were tamed and reared with great care on their estates; and they bestowed the greatest attention to the breed of horses, asses, and other beasts of burden. The pastors, it is true, were a class apart from the peasantry, and one which was held in disrepute

[1] Plut. de Isid. s. 68.

[2] Ibid. s. 69.

by the Egyptians, partly in consequence of the nature of their occupation, and partly from the feeling excited against them by the remembrance of cruelties exercised upon their country by a shepherd race, which had held Egypt in subjection during a long period; and the swineherds were looked upon with such abhorrence, that Herodotus affirms they could not even enter a temple, or contract marriages with any except of their own caste. But the denomination of pastors did not extend to the farmers who bred sheep or cattle; it merely applied to those who tended the flocks, or had their immediate care; and the Egyptian artists, as if to show the contempt in which these people were held, frequently represented them lame or deformed, dirty and unshaven, and sometimes of a most ludicrous appearance. This feeling, however, was not carried to the extent mentioned by Josephus,[1] who asserts that 'the Egyptians were prohibited to meddle with the feeding of sheep;' and the sculptures of Thebes, and every part of Upper and Lower Egypt, abundantly prove them to have kept numerous flocks and herds, which were tended by native Egyptians. Their condition was humble; they lived in sheds[2] made of reeds, easily moved from place to place, which continued to be used by them to the time of Diodorus, as they are by the Ababdeh tribe, a pastoral race, in the upper part of the Thebaïd, to the present day; and it is probable that parts of Egypt, peculiarly adapted for pasture, were inhabited by large bodies of native shepherds, distinct from those employed by rich individuals upon their own farms.



No. 481. A deformed oxherd. *Tombs near the Pyramids.*

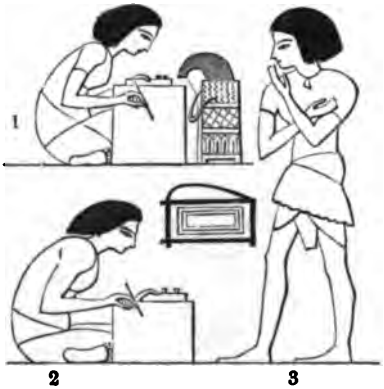
In the extensive domains of wealthy landed proprietors, those who tended the flocks and herds were overlooked by other persons connected with the estate. The peasant who tilled the land

[1] Joseph. Antiq. ii. 7, 5.

[2] Diodor. i. 43.

on which they were fed was responsible for their proper maintenance, and for the exact account of the quantity of food they consumed; some persons were exclusively employed in the care of the sick, which were kept at home in the farmyard; the superintendent of the shepherds regulated the different arrangements connected with them, determined respecting those which were to graze in the field and those which were to be stall-fed, and attended at stated periods to give a report to the scribes belonging to the estate, by whom it was submitted to the steward, and the latter was responsible to his employer for this as well as every other portion of his possessions.

In the accompanying woodcut the head shepherd presents himself to give an account of the stock upon the estate, and behind him are the flocks committed to his charge, consisting of sheep, goats, and wild animals belonging to the person of the tomb, in which this subject is represented; and the expressive attitude of this figure, with his hand to his mouth, is well imagined to convey the idea of his endeavour to recollect the numbers he is giving from memory to the scribes.



Giving an account to the scribes of the stock on the estate.

No. 482. *Thebes.*

Before *fig.* 1 is the satchel, and above *fig.* 2 the box for holding writing implements and papyri. They are writing on boards: in their left hands are the ink-stands with black and red ink.

The shepherds on the estate were chosen by the steward, who ascertained their character and skill, previous to their being appointed to so important a trust; as is shown to have been done in the case of the Israelites, on their arrival in the land of Goshen; Pharaoh expressly commanding Joseph, whom he had made superintendent 'over all the land of Egypt,' to select from among his brethren such as were skilful in the management of the flocks or herds, and 'make them rulers over his cattle.'[1]

The cattle were brought into a court attached to the steward's

[1] Gen. xlvii. 6. The royal cattle were branded or tattooed on their rumps with their numbers, as 'Palace—86,' 'Palace—43' (Rosellini, 'Mon. Civili,' xxx.).—S. B.

house,[1] or into the farmyard, and counted by the superintendent in the presence of the scribes. Every care was taken to prevent or detect frauds, and the bastinado was freely administered, whenever the peasant or the shepherd neglected the animals entrusted to his care.

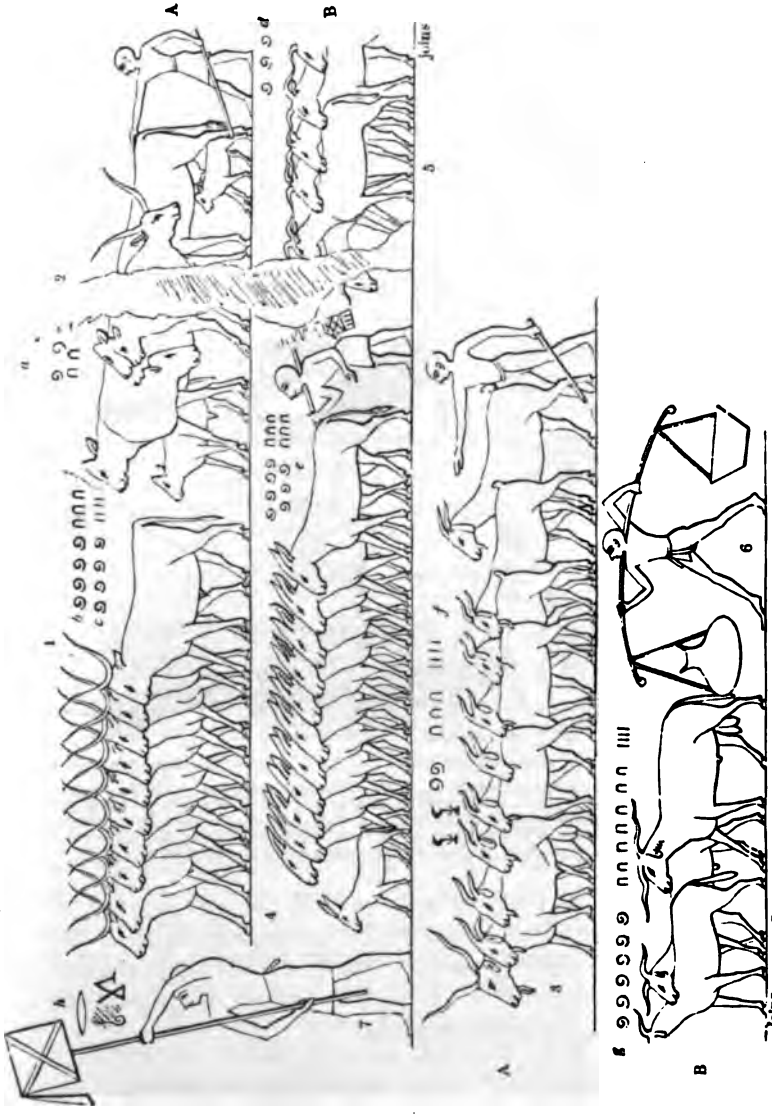
No. 483. Herdsmen giving an account of the cattle. *British Museum.—from Thebes.*

Fig. 1. Herdsmen giving an account to the scribe, 3.
2. Another doing obeisance to the master of the estate, or to the scribe.
4. Object broken.
5. The driver of the cattle, carrying a rope in his hand.
6. Bowing and giving his report to the scribe, 7, over whom is the usual satchel and two boxes.

The accompanying woodcuts fully illustrate the mode of bringing the cattle; and woodcut No. 484 is particularly interesting from the numbers being written over the animals, answering, no doubt, to the report made to the steward, who, in the presence of the master of the estate, receives it from the

[1] The headman of the cattle was the *mer aha:* such officers are found attached to the cattle of the temple of Amen-ra at Thebes, and to the royal cattle.—S. B.

head shepherd. First come the oxen, over which is the number 834, cows 220, goats 3234, asses 760, and sheep 974; behind



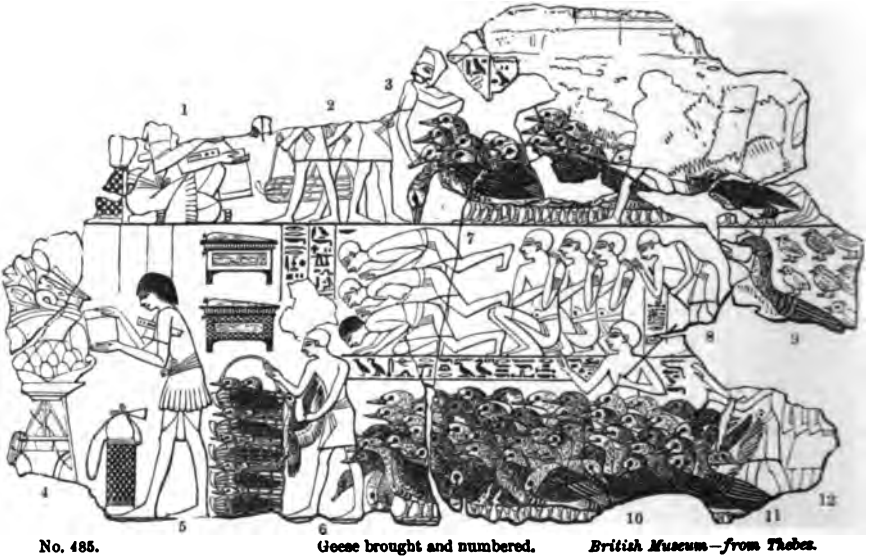
No. 484. Cattle, goats, asses, and sheep, with their numbers over them. *In a Tomb near the Pyramids.*

Fig. 1. The number 834 over long-horned oxen. *Fig.* 2. 220 cows with calves. *Fig.* 3. 3234 goats. *Fig.* 4. 760 asses. *Fig.* 5. 974 sheep. *Fig.* 6. Food-carrier. *Fig.* 7 gives in the account to the steward of the estate. In the original, the two upper lines join the lower at A and B.

which follows a man carrying baskets slung upon a pole. The steward, leaning on his staff and accompanied by his dog,[1] stands

[1] Another tomb has a similar scene, in the text of which are mentioned 132 oxen, 100+*x* sheep, goats (*ser*), 1200 kids, and 1500 pigs. (Rosellini, 'Monumenti Civili,' XXX.)—S. B.

on the left of the picture; and in another part of the tomb, the scribes are represented making out the statements presented to them by the different persons employed on the estate. The tomb where this subject occurs is hewn in the rock near the Pyramids of Gizeh, and possesses additional interest from its great antiquity, having the name[1] of a king who lived about the era of the founders of those monuments, as well as from the subjects it contains, which show the Egyptians to have had



No. 485. Geese brought and numbered. *British Museum—from Thebes.*

Fig. 1. A scribe. 2. Men bringing eggs in baskets. 3. One of the feeders of geese. 4. Table, on which are baskets containing eggs and flowers. 5. The scribe reading the account before the steward or master of the estate, written on a papyrus he holds in his hands. 6. Man bringing the goslings in baskets. 7. The feeders of the geese doing obeisance; others seated in an attitude of respect; and, 8, bowing as he brings up the geese with their young. 9. A large flock of geese brought by others, 10, 11, 12.

the same customs at that early time, and to have arrived at the same state of civilisation as in the subsequent ages of the 18th and later dynasties,—a fact which cannot but suggest most interesting thoughts to an inquiring mind, respecting the state of the world at that remote period.[2]

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[1] Woodcut No. 419, *fig.* 4.

[2] In the letters of Ameneman, No. II., the writer says, 'If there are not oxen in the stall of the house of Pharaoh, which is under my keeping, send four oxen the very best and biggest,' &c. (Goodwin, 'Cambridge Essays,' 1858, p. 248.) And again, Letter III., Pentaur replies, 'His oxen which are in the fields are well, the oxen which are in the stalls are well, eating their provender daily; yea, their keeper filleth them with provender.' (Ibid. p. 249.) Numerous oxen were given to the temples of Thebes, Memphis, and Heliopolis, by Rameses III., taken from the Mashuasha and their confederates ('Records of the Past,' vi. pp. 35,

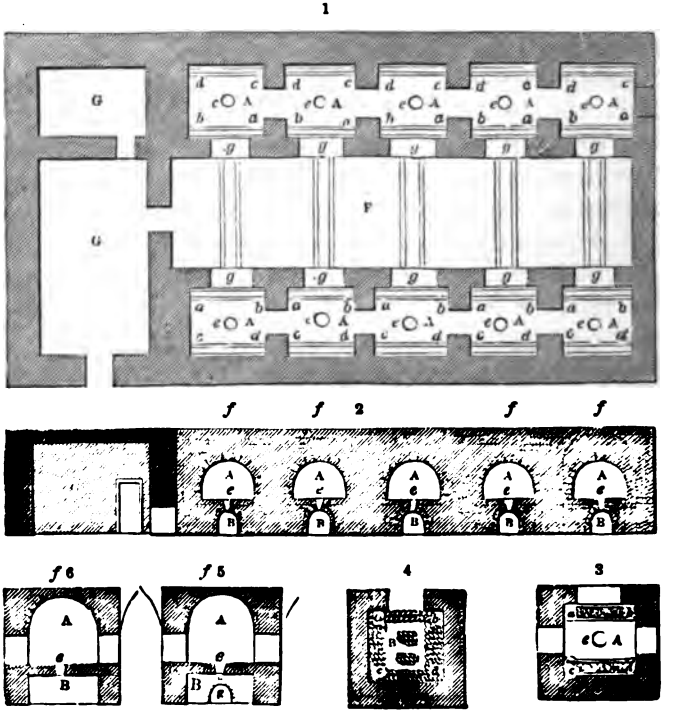
An account of the geese and other fowl was also brought to the steward at the same time; and so scrupulous were they in the returns made to him, that the number of eggs was even ascertained and reported, with the same care as the calves, or the offspring of the flocks.

Everything in Egypt was done by writing. Scribes were employed on all occasions, whether to settle public or private questions, and no bargain of any consequence was made without being sanctioned by the voucher of a written document. The art of curing disease in animals of every kind, both quadrupeds and birds, was carried to great perfection by the Egyptians; and the authority of ancient writers and of the sculptures is curiously confirmed by a discovery of the learned Cuvier, who, finding the left humerus of a mummied ibis fractured, and re-united in a particular manner, proved the intervention of human art. The skill they possessed, says Diodorus,[1] in rearing animals, was the result of knowledge inherited from their parents, and subsequently improved by their own observation, their whole lives being occupied in this pursuit; and the information handed down to them respecting the best mode of treating cattle when ill, and their proper food at all times, was increased not only by the improvements arising from continued experience, but by the emulation common to all men. 'What most excites our wonder,' adds the historian, 'and deserves the greatest praise, is the industry shown by the rearers of fowls and geese, who, not contented with the course of natural procreation known in other countries, hatch an infinite number of birds by an artificial process. Dispensing with the incubation of the hens, they with their own hands bring the eggs to maturity; and the young chickens thus produced are not inferior in any respect to those hatched by natural means.'[2] This artificial contrivance has been handed down to the present day, and continues to be employed by the modern inhabitants of Egypt, particularly the Copts, who may be considered to have the best claim to the title of descendants of the ancient Egyptians.[3] The custom is for the proprietors of the ovens to make the round of the villages in the vicinity, to collect the eggs from the peasants, and to give them in charge to the rearers, who, without any previous

45); 544 to Heliopolis alone (ibid. p. 59). The price of an ox is given as 119 *tes*, or pounds of bronze. (Chabas, 'Mélanges,' 1870, p. 222.)—S. B.

[1] Diodor. i. 74.
[2] Conf. Plin. x. 54.
[3] 'Egypt and Thebes,' p. 246.

examination, place all they receive on mats strewed with bran, in a room about 11 feet square, with a flat roof, and about 4 feet in height, over which is another chamber of the same size, with a vaulted roof, and about 9 feet high; a small aperture in the centre of the vault (at *f*) admitting light during the warm weather, and another (*e*) of larger diameter, immediately below,



No. 486. Modern ovens for hatching eggs.

Fig. 1. Plan of the building, showing the form of the upper rooms A A, the entrance room G G, and the passage F. *e e*, the aperture communicating with the oven.
2. Section of the same, showing the upper rooms, A and B.
3. Plan of upper room, in which the fires are placed at *a b* and *c d*.
4. Lower room, in which the eggs are placed.
5, 6. Sections from the back and front of the upper and lower rooms, A and B.

communicating with the oven, through whose ceiling it is pierced. By this also the man descends to observe the eggs: but in the cold season both are closed, and a lamp is kept burning within; another entrance at the front part of the oven, or lower room, being then used for the same purpose, and shut immediately on his quitting it. By way of distinction, I call the vaulted (A) the upper room, and the lower one (B) the oven.

In the former are two fires in the troughs, *a b* and *c d*, which, based with earthen slabs, three quarters of an inch thick, reach from one side to the other, against the front and back walls. These fires are lighted twice a day: the first dies away about midday; and the second, lighted at 3 P.M., lasts until 8 o'clock. In the oven, the eggs are placed on mats strewed with bran, in two lines corresponding to and immediately below the fires, *a b* and *c d*, where they remain half a day. They are then removed to *a c* and *b d*; and others (from two heaps in the centre) are arranged at *a b* and *c d*, in their stead; and so on, till all have taken their equal share of the warmest positions; to which each set returns again and again, in regular succession, till the expiration of six days.

They are then held up, one by one, towards a strong light: and if the eggs appear clear, and of a uniform colour, it is evident they have not succeeded; but if they show an opaque substance within, or the appearance of different shades, the chickens are already formed; and they are returned to the oven for four more days, their positions being changed as before. At the expiration of the four days they are removed to another oven, over which, however, are no fires. Here they lie for five days in one heap, the apertures (*e, f*) and the door (*g*) being closed with tow to exclude the air; after which they are placed separately about one or two inches apart, over the whole surface of the mats, which are sprinkled with a little bran. They are at this time continually turned, and shifted from one part of the mats to another, during six or seven days, all air being carefully excluded; and are constantly examined by one of the rearers, who applies each singly to his upper eyelid. Those which are cold prove the chickens to be dead, but warmth greater than the human skin is the favourable sign of their success. At length the chicken, breaking its egg, gradually comes forth: and it is not a little curious to see some half exposed and half covered by the shell; while they chirp in their confinement, which they evince the greatest eagerness to quit. The total number of days is generally twenty-one, but some eggs with a thin shell remain only eighteen. The average of those that succeed is two-thirds, which are returned by the rearers to the proprietors, who restore to the peasants one-half of the chickens; the other being kept as payment for their expenses. The size of the building depends, of course, on the means or speculation of the proprietors: but the general plan is usually the same; being a series of eight

or ten ovens and upper rooms, on either side of a passage about 100 feet by 15, and 12 in height. The thermometer in any part is not less than 24° Réaum. or 86° Fahr.;[1] but the average heat in the ovens does not reach the temperature of fowls, which is 32° Réaum.

No. 457.

Fig. 1. Feeding a sick goose, or giving medicine to it, *χήνεσσι*.
2. In the original, this figure shows more skill in the drawing than is usual in Egyptian sculpture. Curing a young *mahut* or leucorys.
3. Feeding an oryx—the priest *Neyla*.
4, 5. Treatment of goats. The fore-leg is tied up to prevent the animal rising while the medicine is administered to it, *χήνεσσι λεχεῦ*.
7 forces a ball of medicated food, taken from the vase before him, into the ox's mouth—*χήνεσσι ταῦτα αὖ*, 'doctoring a young ox.'

Excessive heat or cold are equally prejudicial to this process; and the only season of the year at which they succeed is from the 15th of Imsheer (23rd of February) to the 15th of Baramoodeh (24th of April), beyond which time they can scarcely reckon upon more than two or three in a hundred.

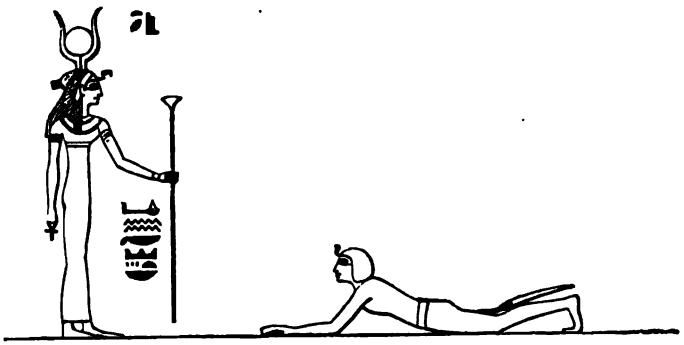
The great care bestowed by the shepherd on the breed of sheep, was attended with no less important results. They were twice shorn, and twice brought forth lambs, in the course of a year;[2]—a circumstance fully proved by modern experience, whenever sufficient care is taken by the shepherd. But though Diodorus is perfectly correct in this part of his statement, he seems to be in error respecting the nature of the pasture on which they were fed, when he suggests that the mere accidental produce of the land after the inundation sufficed for this purpose: for it is far more reasonable to suppose, that formerly, as at the present day, they were supplied with particular food cultivated expressly for them; and from his referring to the

[1] Mr. Hamilton mentions the heat of 88° Fahr.

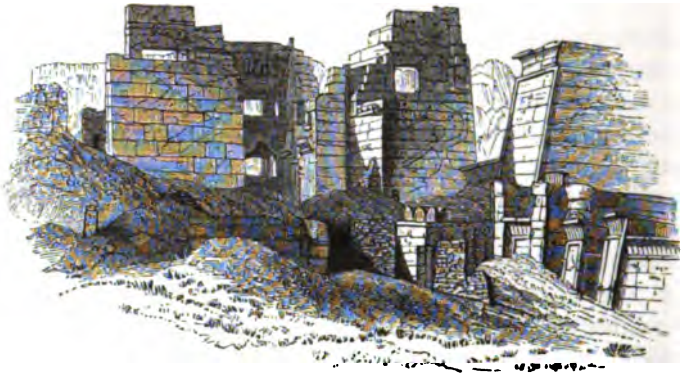
[2] Diodor. i. 36.

period of the inundation, we may suggest that his remark was founded on the fact of their growing clover for the flocks and herds at that season, as is still the custom in Egypt. Those who exercised the veterinary art were of the class of shepherds. They took the utmost care of the animals, providing them with proper food, which they gave them with the hand, and preparing for them whatever medicine they required, which they forced into their mouths. Their medical aid was not confined to oxen and sheep; it extended also to the oryx, and other animals of the desert they tamed or bred in the farmyard; and the poulterers bestowed the same care upon the geese and fowls. Indeed, the numerous herds of the ibex, gazelle, oryx, and other of the antelope tribe, show, equally with their advancement in veterinary art, the great attention paid to the habits of animals: the wild and timid antelopes were rendered so tame as to be driven to the census in the farmyard, like the sheep and goats; and the fowlers were no less successful in their mode of rearing the *vulpanser* geese, and other wild fowl of the Nile.[1]

[1] Rameses III. gave to Heliopolis, besides stables for oxen, apartments to bring up fowls anew with geese and ducks. ('Records of the Past,' vi. p. 55.) He gave 17,250 water-fowl in the course of his reign of thirty-two years (ibid. p. 64). Besides geese, goslings, doves, and various birds were given to the same, and 4339 fowl to Memphis. Both pigeons, *kar em pe*, the Coptic *shrompi*, and ring-doves, *menat*, appear in the list.—S. B.



No. 488. Ptolemy prostrate before Isis, who says, 'I give you all countries.'



VIGNETTE L. Pavilion of Rameses III. at Medeenet Haboo. *Thebes.*

CHAPTER XII.

Religious Opinions of the Egyptians—The Greeks borrowed many of their Notions on Religion from Egypt—The Idea of the Deity entertained by the Priests different from that taught to the uninitiated—Nature of the Gods—Numbers—The Deity manifested upon Earth—Theories in Greek Writers—The great Gods—Triads.

BEFORE we examine the nature of the Pantheon, or the attributes of the deities worshipped by the Egyptians, it will be proper to take a general view of their religious opinions, intimately connected as they were with the manners and customs of the people.

Superstitiously attached to their sacred institutions, and professing a religion which admitted much outward show, the Egyptians clothed their ceremonies with all the grandeur of solemn pomp; and the celebration of their religious rites was remarkable for all that human ingenuity could devise, to render them splendid and imposing. They prided themselves on being the nation in whom had originated most of the sacred institutions afterwards common to other people, who were believed to have adopted them from Egypt; and the mysterious nature and attributes of the deity, though presented under a different form, were recognised by the Egyptians as a direct emanation from the metaphysical philosophy of their priesthood. They claimed the merit of being the first who had consecrated each month and day[1] to a particular deity;—a method of forming the calendar

[1] Herodot. ii. 82.

which has been imitated, and preserved to the present day; the Egyptian gods having yielded their places to those of another Pantheon, which have in turn been supplanted by the saints of a Christian era;—and they also considered themselves the first[1] to suggest the idea of foretelling from the natal hour[2] the future fortunes of each new-born infant, the life he was destined to lead, or the death he was fated to die, which were boldly settled by astrological prediction.[3] 'The Greeks,' says Herodotus,[4] 'borrowed the science of astrology from the Egyptians, but that people have invented more prodigies than all the rest of mankind. They observe and note down every occurrence, as well as whatever follows it; and then carefully watching those of a similar nature, they predict the issue from analogy, being persuaded that it will be the same.' In like manner, observes the historian, to the Egyptians is conceded the honour of teaching mankind the proper mode of approaching the Deity;[5] and Lucian[6] asserts, 'that they were reputed the first who had a conception of the gods, an acquaintance with religious matters, and a knowledge of sacred names,'—an opinion expressed in the words of an oracle of Apollo quoted by Eusebius, which declares that 'they, before all others, disclosed by infinite actions the path that leads to the gods.' And Iamblichus[7] not only considers them 'the first of men who were allowed to partake of the favour of the gods, but that the gods when invoked rejoiced in the rites of Egypt.'

The inspection of the entrails of victims, the study of omens, and all those superstitious customs which the religions of antiquity so scrupulously observed, were deemed highly important among the Egyptians; and the means adopted for divining future events, or the success of any undertaking, were as varied and fanciful as the *derb e' rummel*, and other trials of chance used by Oriental people at the present day.[8]

They even, says Plutarch,[9] 'look upon children as gifted with a kind of faculty of divination, and they are ever anxious

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[1] Herodot. ii. 82.

[2] The Papyrus Sallier IV. is a calendar or almanac of this nature. The particular gods and mythical events of each day are specified, as also the things to do and avoid, and the fate of persons born on particular days. Each day was divided into three portions, and the terms good or bad applied to it in accordance with its character. (Chabas, 'Calendrier Sallier,' p. 21, 8vo, Paris.)—S. B.

[3] Iamblich. de Myst. viii. 6: 'According to many of the Egyptians, that which is in our power depends on the motion of the stars.'

[4] Herodot. ii. 82.

[5] Ibid. ii. 58.

[6] Lucian, de Syria Dea.

[7] Iamblich. de Myst. sect. vii. 5.

[8] Lane's 'Modern Egyptians,' vol. i. p. 341, *et seq.*

[9] Plut. de Isid. et Osir. s. 14.

to observe the accidental prattle they talk during play, especially if it be in a sacred place, deducing from it presages of future events.' Omens were frequently drawn from common accidents, as tokens of good and bad luck; and thus the circumstance of the engineer sighing, while he superintended the transport of a monolithic shrine from Elephantine to Saïs, was sufficient to stop its further progress, and to prevent its introduction into the sacred place intended for its reception;[1] and Amasis, though a man of strong mind and more free from prejudices than the generality of his countrymen, was induced to give way to this superstitious fancy. Sacrifices of meat, offerings, libations, and incense, were of the earliest date in their temples; and if the assertions of Proclus be true, that 'the first people who sacrificed did not offer animals, but herbs, flowers, and trees, with the sweet scent of incense,' and that 'it was unlawful to slay victims,' they only apply to the infant state of mankind, and not to that era when the Egyptians had already modelled their religious habits and belief into the form presented to us by the sculptures of their monuments. And when he adds, that 'no animal should be offered in sacrifice to the gods, though permitted both to good and evil dæmons,' we are not to conclude that the victims slain before the altars in the Egyptian sculptures were confined to the minor deities, or that this typical institution had not its origin in a very remote age.[2] Macrobius, indeed, affirms[3] that 'it was never permitted to the Egyptians to propitiate the gods with the slaughter of animals, nor with blood, but with prayers and incense alone;' an idea expressed also by Ovid,[4] who says that men in former times were reported to have made use of milk[5] and whatever herbs the earth spontaneously produced, and every one offered for himself the sacrifice he had vowed. But these remarks do not apply to the Egyptians, who offered victims on the altars of all their gods; and the privilege mentioned by Ovid, which every individual enjoyed, of offering for himself his own sacrifice, though permitted to the Jews before

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[1] Herodot. ii. 175.

[2] The only example of actual sacrifice in the sculptures is that of Ptolemy Euergetes I. sacrificing an oryx to the god Chons (Champollion, Panth. Egypt.); but sacrifices of animals are mentioned in the texts, as in the poem of Pentaur about Rameses II., the king says, 'I have enriched thy sacrifices, I have slain to thee 3000 bulls.' ('Records of the Past,' vol. ii. p. 70.) Rameses III. also speaks of sacrifices (Ibid. vols. vi. and viii.). —S. B.

[3] Macrob. Sat. i. 4. He is even guilty of stating this to be the case under the Ptolemies, when Serapis and Saturn were introduced into Egypt.

[4] Ovid, Fast. lib. v.

[5] Plin. xiv. 12.

the Exodus, seems only to have been conceded to the Egyptians on particular occasions. With the Israelites, the custom was to offer fruits, the fat and milk of animals, the fleeces of sheep, or the blood and flesh of victims; the right of making the offering being usually confined to the elders, to the head of a family, and to those who were most esteemed for virtue, or venerated for their age. When keeping the sacrifice of the Passover, they were commanded to 'take every man a lamb, according to the house of their fathers, a lamb for an house,' 'a male of the first year,' 'either from the sheep, or from the goats;'[1] and to the head of the family belonged the honour of slaying the victim in the name of the whole house. This custom is retained in the East to the present day; and the sheikh of a tribe, or the master of a house, is expected to slay the victim at the feast of the *Eed*, which the Arabs and other Moslems celebrate on the 10th day of Zoolhegh, the last month of their year. The ceremony is performed in commemoration of the sacrifice of Abraham; and it is remarkable that this patriarchal privilege has never been transferred by them to the priests of the religion. Another point which appears singular to us in this traditional custom is, that the ram then slain is said to be a record of the substitute presented to Abraham in lieu of his son Ishmael, and not of Isaac. The earliest sacrifices of animals appear to have been holocausts; and, as it was deemed unlawful to eat it, the flesh of the victim was consumed by fire: but in after-times, as with the Jews, certain portions only were burnt, and in some cases the residue belonged to the priest who sacrificed, or to the individual who made the offering.[2] And if the fruit of the earth may be considered the *first* offering made by man,[3] yet a 'firstling of the flock, and the fat thereof,' were the sacrifice looked upon as peculiarly acceptable to the Deity;[4] and most people appear to have adopted this method of propitiating Him, and of expiating sin. Indeed, it always continued to be regarded as the most suitable species of offering; and the descriptive formula on Egyptian tablets dedicated to Osiris, and to some other deities, is so worded as to leave no doubt respecting the nature of the most important Egyptian sacrifices; in which we find oxen and geese, with cakes and wine, incense and libation, invariably mentioned; flowers and herbs being presented as a separate oblation.

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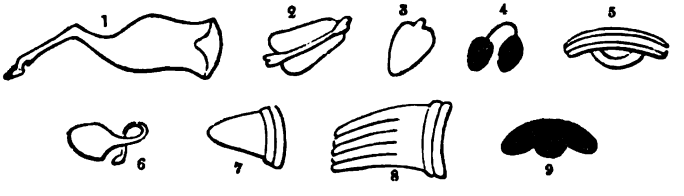
[1] Exod. xii. 3, 5.
[2] As in the peace-offerings. Levit. viii. 31.
[3] Gen. iv. 3.
[4] Gen. iv. 4, 5.

The sanction given for sacrificing a bull was by a papyrus band tied by the priest round the horns, which he stamped with his signet on sealing-clay. Documents sealed with fine clay and impressed with a signet are very common; but the exact symbols impressed on it by the priest on this occasion are not known. Castor says they consisted of a man kneeling, with his hands tied behind him, and a sword pointed to his throat, which were probably the annexed, though they have not been found on a seal. The clay used in closing and sealing papyri is of very fine quality. A similar kind was employed for official seals by the Greeks and Assyrians.

Sma, 'to cut.'

We learn from the sculptures that the victim, having its feet tied together, was thrown on the ground; and the priest, having placed his hand on its head[1] or holding it by the horn, cut its throat, apparently from ear to ear, as is the custom of the Moslems at the present day. The skin was then removed, and after the head had been taken away, the foreleg or shoulder, generally the right,[2] was the first joint cut off. This was considered, and called, the chosen part (*sapt*), and was the first offered on the altar.[3] The other parts were afterwards cut up; and the shoulder, the thigh, the head, the ribs, the rump, the heart, and the kidneys, were the principal ones placed on the altar. The



No. 489. Sacrificial parts of animals.

1. Haunch, χέρσ'. 2. Shoulder, *sut*. 3. Heart, *hat* or *abt*. 4. Kidneys, *nes'em*. 5. Ribs, *spir* or *spek*. 6. Rump or buttock, *sat*. 7, 8. Other joints. 9. Liver.

head, which Herodotus says was either taken to the market and sold to strangers, or thrown into the river, is as common on the altars as any other joint, and an instance sometimes occurs of the whole animal being placed upon it. We may therefore conclude that the imprecations he says were called down upon the head were confined to certain occasions and to one particular victim, as in the case of the scapegoat of the Jews,[4] and it was of that par-

[1] Levit. i. 4; iii. 8.
[2] Levit. viii. 26.
[3] Cf. Levit. vii. 33, viii. 25; 1 Sam. ix. 24.
[4] Levit. xvi. 8, 10, 21.

ticular animal that no Egyptian would eat the head. It may not have been a favourite joint, since we find it given to a poor man for holding the walking-sticks of the guests at a party; but he

No. 490. Wall-painting from a tomb.

The inscription on the left is 'A royal offering to Ra, a royal offering to Seb, and the circle of the great gods of the southern hemisphere.' That on the right, which is imperfect, reads, 'In his house justified he receives . . . ' Before the feet of the seated figure, at the right, is 'thousands of bread and beer, of flesh and fowl, of clothes and fabrics, of incense and wax,' the usual sepulchral formula; and on the left the name of his son Aahmes (4), whose hand offers the bunch of flowers.

was an Egyptian, not a foreigner, and this is in the paintings of a tomb at Thebes, of the early time of the 18th Dynasty.

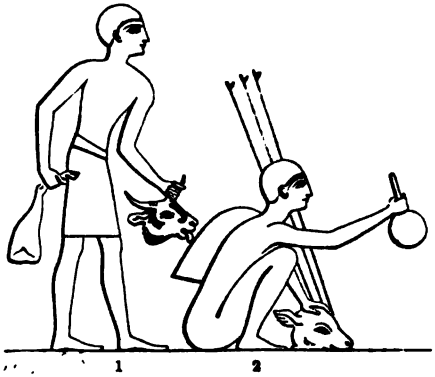
Homer's description of the mode of slaughtering an animal[1]

[1] Il. A, 459.

is very similar: 'They drew back the head and killed it, and after skinning it they cut off the legs, which being wrapped up in the fat (caul) folded double, they placed portions of raw meat thereon; an old man then burnt it on split wood, and poured black wine on it, while the young men beside him held five-pronged spits. When the legs (thighs and shoulders) were burnt, and they had tasted the "inward parts," they cut the rest into small pieces, and put them on skewers (spits), roasting them cleverly, and took all off again.'

No. 491. Offerings on a basket or mat.

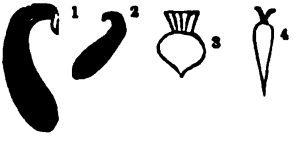
Sheep are never represented on the altar, or slaughtered for the table, at Thebes, though they were kept there for their wool; and Plutarch says, 'None of the Egyptians eat sheep, except the Lycopolites.'[1] Goats were killed, but the Theban gentry seem to have preferred the ibex or wild goat, the oryx, the gazelle, and other game. These, however, were confined to the wealthier classes; others lived principally on beef, Nile geese, and other wild fowl; and some were satisfied with fish, either fresh or salted, with an occasional goose or a joint of meat; and the numerous vegetables Egypt produced appeared in profusion on every table. Lentil porridge was, as at present, a great article of food for the poor, as well as the *raphanus* (*figl*),[2] 'cucumbers (or gourds), melons, and leeks, onions, and garlic,'[3] of which the gourd (*kus*, Arabic *kúz*), melon (*abtikh*, Arabic *batikh*), onion (*busl*, Arabic *busl*), and garlic (*tôm*, Arabic *tôm*) retain their names in Egypt to the present day. They had also fruits and roots of various kinds; and Diodorus[4] says that children had merely 'a little meal of the coarsest kind, the pith of the papyrus, baked



No. 492. Men bringing head and haunch and some other object.

[1] Plut. de Isid. s. 72. [2] Herod. ii. 125. [3] Numb. xi. 5. [4] Diod. i. 80.

under the ashes, and the roots and stalks of marsh-weeds.' Beef and goose, ibex, gazelle, oryx, and wild fowl were also presented to the gods; and onions, though forbidden to the priests, always held a prominent place on their altar, with the *figl* (*raphanus*, woodcut No. 493, *figs.* 3, 4), and gourds (*figs.* 1, 2), grapes, figs (especially of the sycamore), corn, and various flowers. Wine, milk, beer, and a profusion of cakes and bread, also formed part of the offerings, and incense was presented at every great sacrifice.



No. 493. Sacrificial food.

Of that primitive notion which led man to consider sacrifice the type of a more complete expiation, or of the vestiges of early revelation on this point, it is not necessary here to treat; but I shall have occasion to mention some curious ideas respecting the manifestation of the Deity upon earth, which occur in examining the mysteries of ancient Egypt. Oracles were of very remote date among the Egyptians; and the Greeks, as well as some other people, were indebted to them for their institution. 'The origin of the different deities,' says Herodotus,[1] 'their form, their nature, and their immortality, are with the Greeks only notions of yesterday; and the first who have described them in their theogony are Hesiod and Homer, who are only my predecessors by 400 years. They mentioned their names, their worship, their offices in heaven, and their general appearance; and the poets who are said to have preceded those two, came, in my opinion, some time after them.' 'Nearly all the names of Greek divinities,' says the same historian,[2] 'came from Egypt, or at least the greater part; for, with the exception of Neptune, the Dioscuri,[3] Juno, Vesta, Themis, the Graces, and Nereids, the names of all the gods have been always known in Egypt. In stating this, I only repeat what the Egyptians themselves acknowledge to be the case; and the names of deities unknown to them I suppose to have been of Pelasgic origin, with the exception of Neptune, which is from Libya, where that deity has always been held in particular veneration. With regard to Heroes, *they receive no funeral honours* from the Egyptians. The Greeks, indeed, borrowed from the Egyptians the religious

[1] Herodot. ii. 53. [2] Ibid.
[3] Castor and Pollux, the reputed sons of Jupiter.

rites used among them, many of which I shall have occasion to notice; but it is not from them, but from the Pelasgi, that the Athenians, and after them the other Greeks, derived the custom of giving to the statues of Mercury a phallic attitude, the religious reason of which may be found explained in the mysteries of Samothrace.' Herodotus states that the Egyptians were strangers to the names[1] of the above-mentioned deities, but we are not thence to infer that the deities themselves were unknown to them; and there is direct evidence of three, Juno, Vesta, and Themis, holding a distinguished position in the Pantheon of Egypt. Juno was called Sáté, Vesta Anouké, and Themis was doubtless derived from the Egyptian *Thmei*, the goddess of Truth and Justice, from whom were borrowed both her attributes and name. The historian then goes on to observe,[2] 'that the Pelasgi did not at first assign any name to their divinities, but merely applied to them the general appellation of gods, according to the order of the different parts which constituted the universe, and the manner in which they had organised them. It was not till a late period that they came to know their names, which were introduced from Egypt; and they learnt that of Bacchus long after those of the other gods. In process of time they went to consult the oracle of Dodona upon this very point; and having received for answer that they might adopt the names taken from foreigners, the Pelasgi thenceforth used them in their sacrifices, and the Greeks borrowed them from the Pelasgi.' If the ceremonies and worship of Bacchus were introduced into Greece by Melampus,[3] and if some trifling changes were made in them, it was only done in order to suit the tastes of the new votaries; and it is evident, says Herodotus, from the great variance that exists between their rites and Greek manners, and from their resemblance to those of the Egyptians, that they were derived from that people. Other religious ceremonies introduced from Egypt also underwent certain changes, as in the case of the phallic Mercury above alluded to; and though Herodotus[4] derives the form of that deity from a Samothracian custom, there is great reason to suppose that it was borrowed from the figure of the Pan of Chemmis.[5] The ancient oracle of Dodona was allowed, even by the priestesses themselves, to have been of Egyptian

[1] But surely they were not strangers even to the *name* of Themis, being so closely allied to the *Thmei* of Egypt.
[2] Herodot. ii. 52. [3] Ibid. ii. 49.
[4] Herodot. ii. 51.
[5] Both from the office of Mercury, and from what he says of the mysteries of the Cabiri.

origin,[1] as well as that of the Libyan Ammon; and the oracles of Diospolis, or Egyptian Thebes,[2] bore a strong resemblance to the former of those two. The principal oracles in Egypt were of the Theban Jupiter, of Hercules, Apollo, Minerva, Diana, Mars, and above all of Latona, in the city of Buto, which the Egyptians held in the highest veneration; but the mode of divining differed in all of them, and the power of giving oracular answers was confined to certain deities.[3]

There was also an oracle of Besa, according to Ammianus Marcellinus,[4] in Abydus, a city of the Thebaïd,[5] where that deity was worshipped with long established honours; though others assign a different position to his celebrated temple, in the vicinity of Antinoë, which place is supposed to have usurped the site of the old town of Besa, said to have been called Besantinopolis.[6] The mode of obtaining answers was here, as at Heliopolis,[7] through the medium of persons deputed for the purpose, who carried the questions in writing, according to a proper formula,[8] and deposited them sealed in the temple, the answers being retained in the same secret and ceremonious manner. Zosimus relates that, in the time of Constantius, some of the sealed answers, which as usual had been left in the temple, were sent to the Emperor, and the discovery of their contents subjected many persons to imprisonment and exile; apparently in consequence of the oracle having been applied to respecting the fate of the empire, or the success of some design against his life. Different forms were required in consulting different oracles. At Aphaca, a town between Heliopolis and Byblus, where Venus had a temple, was a lake, into which those who went to consult the oracle of the goddess threw presents, of whatever kind they chose, and derived omens from their sinking, or swimming on the surface. If agreeable to the goddess, they sank—if not, they floated; and Zosimus states, that in the year preceding their ruin the offerings of the Palmyrenes sank, and the following year a contrary result predicted the calamity which befell them.[9]

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[1] Herodot. ii. 55.
[2] Ibid. ii. 58.
[3] Ibid. ii. 83, 152.
[4] Ammian. Marcell. lib. xix. 12.
[5] [Ammianus Marcellinus says, 'at the extremity of the Thebaïd,' which was not the situation of Abydus. I am inclined to think he should have said Antinoë. Herodotus, i. 182, mentions it.—G. W.]
[6] [In an old Egyptian writer, quoted by Photius A.D. 173.—G. W.]
[7] Macrob. Saturn. lib. i. 30.
[8] Pliny (xxviii. 2), speaking of consulting oracles, says the greatest care was taken lest a word should be omitted, or even pronounced wrong, and all was according to a set form. (Juvenal, Sat. vi. 390.)
[9] Banier, Mytholog. tom. ii. liv. iv. c. i. p. 40.

'On consulting the god at the Oasis of Ammon, it was customary,' says Quintus Curtius, 'for the priests to carry a gilded boat, ornamented with numerous silver *pateræ* hanging from both its sides, behind which followed a train of matrons and virgins singing a certain uncouth hymn, in the manner of their country, with a view to propitiate the deity, and induce him to return a satisfactory answer.' The oracle of Ammon enjoyed for ages the highest celebrity, and was looked upon by foreigners, as well as Egyptians, with the most profound respect, missions from all countries being sent to consult it, and learn its infallible answers: but in Strabo's[1] time it began to lose its former renown; the sibyls of Rome and the soothsayers of Etruria having substituted omens drawn from the flight of birds, the inspection of victims, and warnings from heaven, for the longer process of oracular consultation; though, according to Juvenal,[2] the answers of Ammon continued in his time to be esteemed in the solution of difficult questions, after 'the cessation of the oracle of Delphi.' Oracles were resorted to on all occasions of importance; and sometimes messages were sent from them spontaneously to those whom they intended to advise, in the form of warnings against an approaching calamity, or as an indication of the divine will.[3] Mycerinus was censured for not having accomplished the intentions of the gods, and received intimation of his approaching death; Sabaco retired from the kingdom in consequence of the predictions and promises of an oracle;[4] and Necho was warned not to continue the canal from the Nile to the Red Sea, lest he should expose his country to foreign invasion.[5] Oracles were also consulted, like the magicians of the present day, in cases of theft; and Amasis is reported to have bestowed presents on those which he found capable of returning true answers, and remarkable for discrimination.

They predicted future events, both relative to private occurrences and natural phenomena; for which purpose, Diodorus[6] tells us, they took advantage of their skill in arithmetical calculations; this last being of the highest importance to them in the study of astrology. 'For the Egyptians most accurately

[1] Strabo, xvii. p. 559.

[2] Juv. Sat. vi. 554.

[3] One of the principal modes of augury was by dreams, and amongst the most remarkable recorded in the inscriptions are the dream of Meneptah before the battle of Prosopis ('Records of the Past,' vi. p. 43); that of Nutmeiamen, prior to his invasion of Egypt (ibid. p. 81: Mariette-Bey, 'Revue Arch.,' 1865, tom. ii. p. 161); and that of Pasherienptah, in the temple of Imouthos ('Archæologia,' xxxix. pp. 315–348).—S. B.

[4] Herodot. ii. 133, 139.

[5] Ibid. ii. 158.

[6] Diodor. i. 81.

observe the order and movement of the stars, preserving their remarks upon each for an incredible number of years; that study having been followed by them from the earliest times. They most carefully note the movements, revolutions, and positions of the planets, as well as the influences possessed by each upon the birth of animals, whether productive of good or evil. And they frequently foretell what is about to happen to mankind with the greatest accuracy, showing the failure and abundance of crops, or the epidemic diseases about to befall men or cattle: and earthquakes, deluges, the rising of comets, and all those phenomena the knowledge of which appears impossible to vulgar comprehensions, they foresee by means of their long-continued observations. It is, indeed, supposed that the Chaldeans of Babylon, being an Egyptian colony, arrived at their celebrity in astrology in consequence of what they derived from the priests of Egypt.'

'The art of predicting future events, as practised in the Greek temples,' says Herodotus, 'came also from the Egyptians; and it is certain that they were the first people who established festivals, public assemblies, processions, and the proper mode of approaching or communing with the divinity.'[1] The manner of doing this depended on the object of the votary, and a proper offering was required for each service.

Meat and drink offerings, and oblations of different kinds, made by the Jews, were in like manner established by law, and varied according to the occasion. 'Some were free-will offerings,[2] others of obligation. The firstfruits, the tenths, and the sin-offerings were of obligation; the peace-offerings, vows, offerings of wine, oil, bread, salt, and other things made to the temple, or the ministers of the Lord, were of devotion. The Hebrews called offerings in general *Corban*; but those of bread, salt, fruits, and liquors, as wine and oil, presented to the temple, they termed *Mincha*. Sacrifices, not being properly offerings, were not generally included under this name. Offerings of grain, meal, bread, cakes, fruits, wine, salt, oil, were common in the temple. These were sometimes presented alone; sometimes they accompanied the sacrifices: but honey was never offered with sacrifices; though it might be presented alone, as firstfruits.[3] There were five sorts of offerings called Mincha, *Minkheh*, or Corban Mincha:[4] 1. Fine flour or meal. 2. Cakes of several sorts, baked in the oven. 3. Cakes baked on a plate. 4. Another sort of cakes,

[1] Herodot. ii. 58. [2] Calmet. [3] Levit. ii. 11, 12. [4] Levit. ii. 1.

baked on a plate with holes in it. 5. The firstfruits of the new corn; which were offered either pure and without mixture, roasted, or parched, either in the ear or out of the ear. The cakes were kneaded with olive oil, fried in a pan, or only dipped in oil after they were baked. The bread offered to the altar was without leaven, for leaven was never offered on the altar, nor with the sacrifices;[1] but they might make presents of common bread to the priests and ministers of the temple. These offerings were appointed in favour of the poor, who could not afford the charge of sacrificing animals; though, when living victims were offered, they were not excused from giving meal, wine, and salt, as an accompaniment to the greater sacrifices. Those who made oblations of bread or of meal presented also oil, incense, salt, and wine, which were in a manner their seasoning. The priest in waiting received the offerings from the hand of him who brought them, laid a part on the altar, and reserved the rest for his own subsistence, as a minister of the Lord. Nothing was wholly burnt up but the incense, of which the priest retained none.[2] When an Israelite offered a loaf to the priest, or a whole cake, the priest divided it into two parts; and having set aside the portion reserved for himself, he broke the other into crumbs, poured on it oil, salt, wine, and incense, and spread the whole on the fire of the altar. If these offerings were accompanied by an animal for a sacrifice, this portion was all thrown on the victim, to be consumed with it. If the offerings were ears of new corn (wheat or barley), they were parched at the fire, or in the flame, and rubbed in the hand, and then offered to the priest in a vessel; who put oil, incense, wine, and salt over the grain, and burnt it on the altar, first having taken his own portion.[3] The greater part of these offerings were voluntary, and of pure devotion. But when an animal was offered in sacrifice, they were not at liberty to omit them. Every thing proper was to accompany the sacrifice, and serve as seasoning to the victim. In some cases, the law required only offerings of corn, or bread; as when they offered the firstfruits of harvest, whether on the part of the nation, or as a mark of devotion from private persons. As to the quantity of meal, oil, wine, or salt, to accompany the sacrifices, we cannot see that the law determined it. Generally, the priest threw a handful of meal or crumbs on the fire of the altar, with wine, oil, and salt in proportion, and all the incense; the rest belonging to

[1] Levit. ii. 11. [2] Levit. ii. 2, 16. Numb. xv. 4, 5. [3] Levit. ii. 14, 15.

himself, and the quantity depending on the liberality of the offerer. Moses appointed[1] an *assaron*,[2] or the tenth part of an *ephah*, of fine flour, for those who could not bring two turtle-doves, or two young pigeons, and had not wherewith to offer the appointed sin-offerings. In the solemn offerings of the firstfruits for the whole nation, they offered an entire sheaf of corn, a lamb of a year old, two tenths of fine meal mixed with oil, and a quarter of a *hin* of wine for the libation.[3] In the sacrifice of jealousy, when a husband accused his wife of infidelity, the husband offered a tenth part of an ephah of barley meal, without oil or incense, because it was "an offering of jealousy," "an offering of memorial;"[4] and the priest pronounced a curse upon the woman, in the event of her having committed a sin, making her drink a cup of bitter water to prove her innocence or her guilt. In like manner, among the Egyptians, a peculiar mode of addressing a prayer, or of offering a sacrifice, was required for different occasions, as well as for different deities; numerous instances of which occur in the sculptured representations of sacrifices in their temples. Nor do ancient authors fail to inform us of this fact; and it was forbidden, says Herodotus,[5] to immolate the pig to any deity except the Moon and Bacchus.

That different animals were chosen for sacrifice in various parts of Egypt is evident from the recorded customs of some of the nomes and cities, where they abstained from offering such as were sacred; and consequently, the same animal which was revered and forbidden to be slaughtered for the altar or the table, in one part of the country, was sacrificed and eaten in another. Thus the Mendesians, who offered up sheep, abstained from goats, which they held in particular veneration; and the Thebans, who permitted no sheep to be slain, immolated goats on the altars of their gods.[6] On the *fête* of Jupiter, a ram was slain; and the statue of the deity being clad in the skin, the people assembled about the temple to make a solemn lamentation, and inflict numerous stripes upon their persons, in token of their regret for the death of the sacred animal, whose corpse was afterwards deposited in a consecrated case. Plutarch affirms[7] that, 'of all the Egyptians, none eat sheep except the Lycopolites; and that because the wolf does so, which they revere as a deity:' and thus

[1] Levit. viii. 11, and xiv. 21.
[2] עֲשָׂרוֹן, *asáreth* or *gasiruth*.
[3] Levit. xxiii. 10, *et seq.* Numb. v. 15.
[4] Numb. v. 15. Calmet.
[5] Herodot. ii. 47.
[6] Ibid. ii. 42, 46.
[7] Plut. de Isid. s. 72.

it was that in one part of the country certain rites were performed which differed totally from those of the rest of Egypt. This, however, did not extend to the worship of the great gods of their religion, as Osiris,[1] Amen, Ptah, and others, who were universally looked upon with becoming reverence, and treated, not as arbitrary emblems, but as the mysterious representations of some abstract qualities of the divinity itself; and if one or other of them was more peculiarly worshipped in certain cities or provinces of Egypt, it was from his being considered the immediate patron and presiding deity. But though his protection and assistance were particularly invoked by the inhabitants, other deities shared with him the honours of the sanctuary, under the name of contemplar gods, whose united favours they did not fail to implore. With this feeling, the dedication and votive prayers put up in the temples were addressed to the presiding deity and the contemplar gods;[2] and if the former held the most conspicuous post in the adytum and other parts of the temple, the latter received all the respect due to them as equally sacred, though not enjoying the same external honours in that building. And thus, again, we find that separate temples were raised to various deities in the same city.

In the worship of sacred animals the case was different; and it frequently happened that those which were adored in some parts of Egypt, were abhorred and treated as the enemies of mankind in other provinces: deadly conflicts occasionally resulting from this worship or detestation of the same animal. The arbitrary choice of peculiar emblems, and the adoration paid to animals and inanimate objects, frequently depended upon accident, or some peculiar local reason; and though great respect was shown to the ichneumon, from its destroying the eggs of the crocodile, in places where that animal was considered an enemy of man, it obtained no honours in those where the crocodile was a sacred animal, as the type of a beneficent deity. This remark applies equally to other sacred emblems, as I shall have occasion to show in describing the sacred animals. But if, in most instances, the motives assigned for their choice appear capricious and unsatisfactory, we frequently discover some plausible pretext derived from a sanitary notion, as in the case of their abstinence

[1] If Osiris was not nominally one of the eight great gods, he in reality held a rank equal to any.

[2] For instance, at Ombos, where the presiding deity was Aroeris, the dedication says that the 'infantry and cavalry and others stationed in the Ombite nome, dedicated the adytum to Aroeris, the great god Apollo, and to the contemplar deities, for their benevolence towards them.'

from the meat of swine, from beans and 'most sorts of pulse,'[1] and from certain fish of the Nile; or connected with some advantage to mankind: and in order to command the observance of these injunctions, and to prevent the possibility of their being disregarded, many forbidden things were denominated sacred, or reputed to partake of the nature of the gods. 'For,' says Porphyry, 'the Egyptians either considered animals to be really deities, or represented their gods with the heads of oxen, birds, and other creatures, in order that the people might abstain from eating them, as they did from using human flesh, or for some other more mysterious reason;' and religious prejudice commanded respect for them as for 'their melodies, which were preserved through successive ages as the actual poems of the goddess Isis.'[2] In process of time, the original motive was forgotten, and mere blind adoration took its place: but Plutarch says,[3] 'It is evident that the religious rites and ceremonies of the Egyptians were never instituted on irrational grounds, or built on mere fable and superstition; all being founded with a view to promote the morality and happiness of those whose duty it was to observe them.' The Greeks frequently delighted in deriding the religious notions of the Egyptians: and, indeed, considering the strange animals, the fish, and even vegetables, admitted to a participation of divine honours, and the lamentations they uttered when death or any accident befell them, we may readily conceive that the lively wit of a Greek, who looked upon this superstitious custom in a literal point of view, would not fail to seize the points most open to ridicule. Antiphanes,[4] in his 'Lycon,' speaking jestingly of the Egyptians, says, 'Besides, clever as they are reputed in other things, they show themselves doubly so in thinking the eel equal to the gods: for surely it is more worthy of honour than any deity, since we have only to give prayers to the gods; but we must spend upon the eel at least twelve drachmas or more, merely to smell it—so perfectly holy is this animal!' Anaxandrides,[5] in his play of the 'Cities,' addressing the same people, observes: 'I cannot agree with you; our customs and laws differ so widely: you adore the ox; I sacrifice it to the gods: you think the eel a very great deity; we look upon it as the most delicious dainty: you abstain from the flesh of swine; I delight in it above all things: you adore the dog; I give him a good beating whenever

[1] These and fish were forbidden to the priests. (Plut. de Isid. s. 5.)
[2] Plato, Second Book of Laws, p. 790.
[3] Plut. de Isid. s. 8.
[4] Athen. Deipn. vii. p. 299, ed. Cas.
[5] Idem, *loc. cit.*

I catch him stealing any meat. Here a priest is required to be whole in every part; with you, it appears, they are mutilated. If you see a cat indisposed, you weep; I am delighted to kill it, and take its skin: the mygale, with you, has great influence; with us, none.' Timocles,[1] also, in his 'Egyptians,' says, 'How could the ibis or the dog have preserved me? for when persons irreverent towards those who are really confessed to be gods, escape immediate punishment, whose offences shall be visited by the altar of a cat?' The favourable opportunity of indulging in satire, presented by the superstitions of Egypt, could not escape the severe lash of Juvenal, who thus commences his Fifteenth Satire:—

'Who knows not, Bithynian Volusius, what monsters
Mad Egypt can worship? This place adores a crocodile;
That fears an ibis saturated with serpents.
A golden image of a sacred Cercopithecus shines
Where the magic chords resound from the half Memnon,
And ancient Thebes lies overthrown with its hundred gates.
There a sea-fish, here a river-fish, there
Whole towns worship a dog, nobody Diana.
It is a sin to violate a leek or an onion, or to break them with a bite.
O holy nation, for whom are born in gardens
These deities! Every table abstains from animals bearing
Wool; it is there unlawful to kill the offspring of a she-goat,
But lawful to be fed with human flesh.'[2]

The animal worship of the Egyptians naturally struck all people as a ludicrous and gross superstition; but when Xenophanes and others deride their religious ceremonies by observing, 'If your gods are really gods, weep not for them; if men, do not offer them sacrifices,' the objection comes badly from a Greek; and, as Clemens justly remarks, that people had little reason to criticise the religion of the Egyptians: for into the Pantheon of Greece a greater number of deified men were admitted than into that of any ancient people; and the legendary tales of the deities degraded their nature by attributing to them the most inconsistent and disgusting vices.

On the superstition of the Egyptians in considering animals or herbs to be gods, and in lamenting their death, Plutarch observes:[3] 'Struck with the manifest absurdity of these things, Xenophanes the Colophonian, and other philosophers who followed him, might not only have said to the Egyptians, "If ye believe them to be gods, why do ye weep for them? if they deserve your lamentations, why do ye repute them gods?"

[1] Athen. *loc. cit.*

[2] This is an exaggeration and a licence of satire.

[3] Plut. de Isid. s. 71.

but they might have added, that it was still more ridiculous to weep for the fruits of the earth, and at the same time to pray for them that they would appear again and bring themselves to maturity, to be again consumed and again lamented:' and nothing could be more open to censure than the folly of the Egyptians in paying divine honours to the brute creation. For whatever may have been their original motive, the natural consequence of its introduction ought to have been foreseen: they may have deified some to insure their preservation, because they were useful to the country; others may have been called sacred, to prevent their unwholesome meat becoming an article of food; and some may have been selected as emblems of certain deities, from various reasons: but the result ought to have been anticipated, and an enlightened priesthood should have guarded men's minds against so dangerous a fallacy. For, as Plutarch observes,[1] 'The Egyptians—at least, the greater part of them—by adoring the animals themselves, and reverencing them as gods, have not only filled their religious worship with many contemptible and ridiculous rites, but have even given occasion to notions of the most dangerous consequence, driving the weak and simple-minded into all the extravagance of superstition.'

It was likewise unjust and inconsistent that the priesthood should have a creed peculiar to themselves, and the people be left in utter ignorance of the fundamental doctrines of their religion; that in proportion as their ideas were raised towards the contemplation of the nature of a god, the other classes, tyrannically forbidden to participate in those exalted studies, should be degraded by a belief totally at variance with the truths imparted to the initiated: and whilst these last were acquainted with the existence of one Deity in unity, and the operations of the Creative Power, that the uninstructed should be left and even taught to worship a multiplicity of deities, whose only claims to adoration were grounded upon fable. The office of the gods was, perhaps, in early times more simply defined, their numbers smaller, their attributes less complicated; but the weakness of men's minds, when untutored on religious subjects, soon paved the way for idle superstition: the belief in genii and spirits pervading the universe, led to the adoration of fanciful beings; and perverted notions respecting the Deity, obliterating every trace of the simple original, effectually prevented the uninitiated from

[1] Plut. de Isid. s. 71.

suspecting the real nature of their religion. And so gross at length became their ideas, that the character of the gods they worshipped was degraded, their supposed actions censured, or their non-interference avenged by an insult to their statues or their names. It is not, then, surprising that foreigners should be struck with the absurdities which, from outward appearances, the religion of Egypt presented; and the animals chosen as emblems of the gods, or as substitutes for the divine rulers of the world, were frequently calculated to give a very low opinion of the exalted personages of whom they were thought to be proper representatives; and however appropriately the hieroglyphics might indicate a child by a goose,[1] the god of learning could scarcely be flattered by being figured under the form of an ape, or the Creator of the world, who made all things perfect, under the deformed character of the pigmy Ptah.

An Egyptian priest, it is true, might object to his religion being judged by the standard of our ideas; he might insist upon the necessity of secrecy in the mysteries, in order to prevent the dangerous speculations of those who were not subject to the oaths of initiation; and he might suggest that, in the most simple and pure religions, many expressions had secret meanings, and that a literal interpretation of them would offend against the spirit of the religion itself. In justice, therefore, some allowance should be made for the allegorical religion of the Egyptians: and when we reflect that it contained many important truths, founded upon early revelations made to mankind, and treasured up in secret to prevent their perversion, we may be disposed to look more favourably on the doctrines they entertained, and to understand why it was considered worthy of the divine legislator to be 'learned in all the wisdom of the Egyptians.' That the reasons assigned for the worship of certain objects are highly ridiculous, cannot be doubted, and no satisfactory motive can be discovered for many of the religious customs established in Egypt; but we may be satisfied that ancient authors were not sufficiently acquainted with the subject to place these points in their proper light—much less to give any satisfactory explanation; and their origin and tendency becoming at length enveloped in a cloud of fanciful speculation, few even of the Egyptians themselves were capable of understanding the intricacies of their own religion. It is evident, indeed, that no Egyptian who was not

[1] In fact, merely in consequence of its phonetic or alphabetic value.

initiated into the mysteries understood the purport of the ceremonies he witnessed, or obtained any notion of the nature of the theogony, beyond that usually entertained by the votaries of a polytheism: and the fabulous existence of the gods on earth supplied, among the uninstructed, the place of abstract notions, which the initiated were taught to apply to the external forms they worshipped. It was this ignorance of the nature of the gods which led the Greeks to believe their positive existence upon earth in a human form, and to receive all the legendary tales of their actions as literal truths; bringing down the deities, as Cicero observes, to the level of men, instead of raising men to the level of the gods. But we find that Plutarch[1] was so far acquainted with those secrets (to a participation of which he had, in a certain degree, been admitted), as to deride the idea of the deities having been once human, or having[2] lived among men; and a remark made by the Egyptians themselves to Herodotus and Hecatæus, shows how ignorant they considered the Greeks on this subject. 'For many,' says Origen, 'listening to accounts they do not understand, relative to the sacred doctrines of the Egyptian philosophers, fancy that they are acquainted with all the wisdom of Egypt, though they have never conversed with any of the priests, nor received any information from persons initiated into their mysteries.' 'Greece,' observes the Abbé Banier,[3] 'never had but a confused idea of the history of her religion. Devoted without reserve on this important point to her ancient poets, she looked upon them as her first theologians; though these poets, as Strabo[4] judiciously remarks, either through ignorance of antiquity or to flatter the princes of Greece, had arranged in their favour all the genealogies of the gods, in order to show that they were descended from them. Whenever, therefore, any heroes are mentioned in their writings, we are sure to find Hercules, Jupiter, or some other god at the head of their

[1] Plut. de Isid. s. 22, 23.

[2] Cicero, de Nat. Deor. i. The only appearance of a man having the character of a deity occurs in the temple built by Thothmes III. at Samneh, where Usertesen III. is represented performing the same offices as a god, but we do not know how far he was assimilated to a deity, and he merely wears a *royal* cap. There are also offerings of kings, as of other persons, to their deceased parents; but these are only made to them in the character they assumed after death, when they received the name of Osiris, from being supposed to return, after a virtuous life, to the great origin from which they were emanations. Sometimes the king even offers to a figure of himself and his queen, seated on thrones, before whom he stands as an officiating priest. [Usertesen III. is called there the *Tat-un*, or 'young *Tat*,' assimilated to Osiris. The reason is unknown: it was a strictly local worship.—S. B.]

[3] 'La Mythologie expliquée par l'Histoire,' vol. i. liv. ii. c. 5.

[4] Strabo, lib. x.

genealogies; and if the desire to pass for very ancient is common to nearly all people, the Greeks were, of all others, the most conspicuous for this folly. It is, indeed, surprising that they, who could not possibly be ignorant of their having received many colonies from Egypt and Phœnicia, and with them the gods and ceremonies of their religion, should venture to assert that those same deities were of Greek, or Thracian, or Phrygian origin; for it is to this conclusion that their poets pretend to lead us. But two words of Herodotus, who says that the gods of Greece came from Egypt, are preferable to all that their poets have put forth on this subject;' and Plato tells us that 'when Solon inquired of the priests of Egypt about ancient affairs, he perceived that neither he nor any one of the Greeks (as he himself declared) had any knowledge of very remote antiquity.' 'And as soon as he began to discourse about the most ancient events which happened among the Greeks, as the traditions concerning the first Phoroneus and Niobe, and the deluge of Deucalion and Pyrrha,[1] one of the more ancient priests exclaimed, "Solon, Solon, you Greeks are always children, nor is there such a thing as an aged Grecian among you: all your souls are juvenile; neither containing any ancient opinion derived from remote tradition, nor any discipline hoary from its existence in former periods of time."'[2] Justly did the priests deride the ridiculous vanity and ignorance of the Greeks, in deriving their origin from gods; and they assured Herodotus,[3] that during the long period which elapsed from the commencement of the Egyptian monarchy to the reign of Sethos (comprising 341 generations), 'no deity had appeared on earth, in a human form, nor even before, nor since that time;' and when 'Hecatæus,' says the historian, 'boasted of his genealogy to the priests of Jupiter at Thebes, claiming for his family the honour of being descended from a god,[4] whom he reckoned as his 16th ancestor, they made the same observation to him as to me, though I had said nothing respecting my ancestry. Having taken me into a large consecrated chamber, they showed me a series of as many wooden statues as there had been high priests during the above-mentioned period; for each high priest, while yet living, had his image placed there; and having counted them all before me, they proved that every one had

[1] The priests said to Solon, 'You mention one deluge only, whereas many happened.' (Plat. in Tim. p. 466, trans. Taylor.)

[2] Plat. in Tim. p. 467.

[3] Herodot. ii. 142.

[4] [The title 'god,' given to the kings, was merely honorary.—G. W.]

succeeded his father at his demise, beginning from the oldest, and coming down to the last. The same had been done before Hecatæus, when he boasted of his genealogy; and in opposing his pretensions by the number of their high priests, they denied that any man was descended from a deity. Each statue, they argued, represented a *Pirómis* begotten by a *Pirómis*[1] (a *man* engendered by a *man*); and having gone through the whole number of 345, they showed that every one was the son of his predecessor, without a single instance of any being descended from a god, or even a hero.'[2]

Of their idea respecting the manifestation of the Deity on earth, which the Egyptians entertained in common with the Hindoos, but which is far more remarkable in their mode of treating it, I shall not speak at present. This question is totally different from that of the existence of the gods on earth,[3] alluded to by Herodotus, and must be looked upon under a very different aspect, as the most curious mystery which has been traced in the religion of Egypt. That the images of the Egyptian deities were not supposed to indicate real beings,[4] who had actually existed on earth, is abundantly evident from the forms under which they were represented; and the very fact of a god being figured with a human body and the head of an ibis, might sufficiently prove the allegorical character of Thoth, or Mercury, the emblem of the communicating medium of the divine intellect, and suggest the impossibility of any other than an imaginary or emblematic existence; in the same manner as the sphinx, with a lion's body and human head, indicative of physical and intellectual power, under which the kings of Egypt were figured, could only be looked upon as an emblematic representation of the qualities of the monarch. But even this evident and well-known symbol did not escape perversion; and the credulous bestowed upon the

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[1] *Piromi* is the Egyptian word signifying 'the man,' which Herodotus, from his ignorance of the language, has translated 'good and virtuous.' The sense itself ought to have pointed out the meaning of the word *romi*, 'man.'

[2] Against this must be set the fact that the Theban kings were called sons of Amen, of the blood or substance of that god, and supposed to be the direct descendants of the deity—a legend subsequently adopted by Alexander the Great, in his supposed mysterious descent from the god.—S. B.

[3] In the lists of Manetho certain gods reigned an assigned number of years on earth, showing their existence on it. The romance of the Two Brothers represents the gods coming on earth to see the woman they had made.—S. B.

[4] At a later period, perhaps, the idea of a single god, personated by the different local types, prevailed; but the original conception of each group of deities was anthropomorphic, consisting of the principal god, his wife, her sister, and his child or children, all purely humanised idols of the god. The whole myth of Osiris is preeminently anthropomorphic, as all original notions of gods are.—S. B.

sphinx the character of a real animal. It signified little, in the choice of a mere emblem, whether it was authorised by good and plausible reasons; and if, in process of time, the symbol was looked upon with the same veneration as the deity of whom it was the representative, the cause of this corruption is to be ascribed to the same kind of superstition which, in all times and in many religions, has invested a relic with a multiplicity of supposed virtues, and obtained for it as high a veneration as the person to whom it belonged, or of whom it was the type.

This substitution of an emblem, as an animal,[1] or any other object, for the deity, was not the only corruption which took place in the religion of the Egyptians: many of the deities themselves were mere emblematic representations of attributes of the one and sole God: for the priests who were initiated into, and who understood the mysteries of, their religion, believed in one deity alone; and, in performing their adorations to any particular member of their Pantheon, addressed themselves directly to the sole ruler of the universe, through that particular form. Each form (whether called Ptah, Amen, or any other of the figures representing various characters of the Deity) was one of His attributes; in the same manner as our expressions 'the Creator,' 'the Omniscient,' 'the Almighty,' or any other title, indicate one and the same Being: hence arose the distinction between the great gods and those of an inferior grade which were physical objects, as the sun and moon; or abstract notions of various kinds, as 'valour,' 'strength,' 'intellectual gifts,' and the like, personified under different forms; and it is evident that no one who understood the principles on which the groundwork of the Egyptian Pantheon was based, could suppose that the god of valour, of strength, or of intellect, had ever lived on earth; and we may readily conceive how the Egyptian priests derided the absurd notions of the Greeks, who gave a real existence to abstract ideas, and claimed a lineal descent from '*strength*,' or any deified attribute of the Divinity. Upon this principle it is probable that gods were made of the virtues, the senses, and, in short, every abstract idea which had reference to the deity or man; and we may therefore expect to find, in this catalogue, intellect, might, wisdom, creative power, the generative and

[1] The animal head placed on the deity showed and alluded to the animal worship; the peculiar animal being that in which the soul of the deity was supposed to be incarnate.—S. B.

productive principles, thought, will, goodness, mercy, compassion,[1] divine vengeance, prudence, temperance, fortitude, fate, love, πόθος, hope, charity, joy, time, space, infinity, as well as sleep, harmony,[2] and even divisions of time, as the year, month, day, and hours, and an innumerable host of abstract notions. These, in like manner, were admitted into the Pantheon of Greece and Rome, with the addition of some not very delicate or elegant personages; who were frequently permitted to supersede and usurp the place of the more respectable divinities of earlier times. There were also numerous physical deities in the Egyptian Pantheon, as earth, heaven, the sun and moon, and others, revered for the benefits they conferred on man; though the view they took of the elements mentioned by Seneca, appears rather to have been a metaphysical than a religious doctrine: and if they divided each of the four elements into two, making one masculine, the other feminine, it was in order to establish a distinction which appeared to correspond to a difference in their nature, as between the active wind and the passive mist, or inert atmosphere; between sea and fresh water; between fire which burns and light which shines; between stone and rock, as part of earth and as cultivable land; the former of all these being masculine, the latter feminine.[3]

Different people have devised various modes of representing the personages connected with their religion. The Egyptians adopted a distinguishing mark for their gods, by giving them the heads of animals, or a peculiar dress and form, which generally, even without the hieroglyphic legends, sufficed to particularise them; but they had not *arrived* at that refinement in sculpture which enabled the Greeks to assign a peculiar face and character to each deity. This was an effort of art to which none but the most consummate masters could attain: and even the Greeks sometimes deviated from these conventional forms;

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[1] The *rahman* and *rahim* of the Arabs.

[2] Plutarch says Harmony was the offspring of Mars and Venus (de Isid. s. 48). This, as the idea of Minerva springing from the head of Jove and other similar fables, shows that many of the Greek gods were, in like manner, personifications of ideas, and attributes of the deity.

[3] Seneca, Nat. Quæst. iii. 14, p. 870.

The gods of the four elements are found personified at various places, as Edfu, Karnak, Medinat Habu, Derr el Medenet, and Philæ. They form groups of eight gods, each god having a god and goddess personifying it. Their heads are generally that of the frog or uræus. Water, as the first element, was represented by the god Nut or Han, and a goddess of the same name personifying the same. Fire, the second element, is called Hehu and Hehut, apparently in the sense of 'day' or 'ages.' Earth has the names of Kak or Kaket. Darkness and Air have that of Nu, or 'breath.' (Lepsius, 'Die Götter d. vier Elementen,' Abh. d. K. Akad. d. Berlin, 1856, p. 181, and foll.)—S. B.

the Apollo, or the Bacchus, of one age, differing from those of another; and the lion-skin, the dolphin, the crescent, or the eagle, were generally required to identify the figures of a Hercules, a Venus, a Diana, or a Jove. Indeed, in so extensive a Pantheon as that of Egypt, it would be impossible to maintain the peculiarities of features, even if adopted for the principal gods; and the Christians have found it necessary to distinguish the apostles and saints by various accompanying devices, as the eagle, the lion, a wheel, or other symbols.

Though the priests were aware of the nature of their gods, and all those who understood the mysteries of the religion looked upon the Divinity as a sole and undivided Being, the people, as I have already observed, not admitted to a participation of those important secrets, were left in perfect ignorance respecting the objects they were taught to adore; and every one was not only permitted, but encouraged, to believe in the real sanctity of the idol, and the actual existence of the god whose figure he beheld. The bull Apis was by them deemed as sacred and as worthy of actual worship as the Divinity of which it was the type; and in like manner were other emblems substituted for the deities they represented. But however the ignorance of the uninstructed may have misinterpreted the nature of the gods, they did not commit the same gross error as the Greeks, who brought down the character of the creative power, the demiurge who made the world, to the level of a blacksmith; this abstract idea of the Egyptians being to the Greeks the working Vulcan, with the hammer, anvil, and other implements of an ordinary forge. The Egyptians may have committed great absurdities in their admission of emblems in lieu of the gods; they were guilty of the folly of figuring the deities under the forms of animals; but they did not put them on an equality with earthly beings, by giving them the ordinary offices of men: they allowed them still to be gods; and their fault was rather the elevation of animals and emblems to the rank of deities, than the bringing down of the gods to the level of mankind. In noticing the religion of the Egyptians, it is not my intention to enter into a detailed account of the offices and attributes of the numerous gods who composed their Pantheon, nor, indeed, have we as yet sufficient data to enable us to penetrate into all the intricacies of this curious question; I shall therefore confine myself to the general forms and characters of the deities, and endeavour to explain the principle on which the superstructure

of their theogony was based. In the early ages of mankind, the existence of a sole and omnipotent Deity, who created all things, seems to have been the universal belief; and tradition taught men the same notions on this subject which in later times have been adopted by all civilised people. Whether the Egyptians arrived at this conclusion from mere tradition, or from the conviction resulting from a careful consideration of the question, I will not pretend to decide; suffice it to know that such was their belief, and the same which was entertained by many philosophers of other nations of antiquity. Some of the Greeks, in early times, had the same notions respecting their theogony, as we learn from a very old author, 'if it be true,' as the Abbé Banier[1] observes, 'that Pronapides adopted them, who was the preceptor of Homer, as Boccaccio[2] affirms, on the authority of a fragment of Theodontius. According to this ancient theogony, the most rational of all, there was only one eternal God, from whom all the other deities were produced. It was not permitted to give any name to this first Being,[3] and no one could say who he was. Anaxagoras thought to have defined him, by saying that he was *νοῦς*, "understanding." However, as the most simple ideas have been altered in after-times, Lactantius, the scholiast of Statius, calls this Sovereign Being Daimogorgon, as does the author above alluded to, in imitation of Theodontius. His name signifies the Genius of the Earth; but, from the description given of this god, it scarcely agrees with the idea that the first philosophers entertained of him: for it is right to observe that the poets, who were the earliest theologians of Greece, have, as it were, personified their ideas, and made out theogonies according to their fancy, though they appear always to suppose a Being really independent. Most of them agree in an eternity, an ontogony, or generation of beings, some of whom are heavenly, others earthly or infernal; but Daimogorgon and Achlys, according to their system, were before the world, even anterior to chaos. Their Acmon, their Hypsistus, existed before the heavens, which the Latins called Cœlus, and the Greeks Ouranos. According to them, the Earth, Tartarus, and Love preceded Cœlus, since we find in Hesiod that this last was son of the Earth:[4] and some considered Acmon to be the father of Cœlus, and the son of Manes. Cœlus also was the parent of Saturn,

[1] Mytholog. vol. i. lib. ii. c. 5.
[2] Genealog. of the Gods, i. c. 3.
[3] Statius, Thebais, lib. iv. ver. 316.
[4] Though Saturn was said to be son of Cœlus and Terra.

who was himself the father of the other gods. The giants, sons of the earth, came afterwards, and Typhon was the last of them; after whom were the demigods, engendered by an intercourse between the gods and the inhabitants of the earth.'

It is still doubtful if the Egyptians really represented, under any form, their idea of the unity of the Deity; it is not improbable that His name, as with the Jews, was regarded with such profound respect as never to be uttered; and the Being of Beings, 'who is, and was, and will be,' was perhaps not even referred to in the sculptures, nor supposed to be approachable, unless under the name and form of some deified attribute, indicative of His power and connection with mankind.

Many allegorical figures are supposed to have been adopted for this purpose; and Greek writers have imagined that the snake curled into the form of a circle, with its tail in its mouth, and other similar emblems, were used by the Egyptians to indicate the unutterable name of the eternal Ruler of the universe: but these are merely symbols of His deified attributes (if, indeed, the snake in that form can be admitted among the number[1]); and neither the snake, the emblem of Neph, the hawk, nor any other emblem, can be considered in any way connected with the unity of the Deity. Even Osiris himself cannot be looked upon as the Deity in unity; though his character of judge of the dead in the region of Amenti, and his mysterious nature as an Avatar, give him a higher and more comprehensive rank than any other god: and it is not a little remarkable that he there appears as one of two members of a separate triad, though he had returned, after performing his duties on earth during his manifestation, to that state from which he was supposed to proceed. One of the most perplexing parts of the Egyptian system is the varied character of the same deity; and the many names of Osiris, as the title *Myrionymus* ('with ten thousand names') given to Isis, show the difficulty of ascertaining their office on different occasions. It appears, then, that the Divinity Himself was not represented in the Egyptian sculptures, and that the figures of the gods were deified attributes indicative of the intellect, power, goodness, might, and other qualities of the eternal Being; which, in some measure, accords with the opinion of Damascius, who observes that 'nearly all philosophers prior to Iamblichus asserted that there was one

[1] It does not appear to be met with singly in the ancient temples as the representative of any Egyptian deity.

superessential God, but that the other deities had an *essential* subsistence, and were deified by illuminations from *the One.*' Some, which belonged to the Divinity Himself, were considered the great gods of the Egyptian Pantheon; the next class of deities were emanations from the same source; and the minor divinities of various grades were the representatives of inferior powers, of physical objects connected with the Creator, and of different abstract ideas, whose relative rank depended on the near or distant connection they were deemed to possess with a divine origin. Some, again, were mere deifications of physical objects; and superstition raised to a sacred rank a useful animal or an unwholesome plant. The same may be observed in the religion of the Greeks and Romans; and to such an extent was this carried by the latter, and so degraded did the office of a deity become, that one was chosen to preside over the common sewers of the city, and a god of coughing[1] was invented as a suitable companion to the goddess Fever.[2]

The Egyptians, like the Greeks and Romans, divided their gods into different classes or grades. Among the latter, they consisted of the twelve great gods,—the Dii majorum gentium or Dii Consentes, and the Dii minorum gentium; and the Egyptians, in the same manner, distinguished their eight great gods from those of an inferior rank. The names of the twelve great gods of the Greeks have been preserved by Ennius in the following couplet:—

'Juno, Vesta, Minerva, Ceres, Diana, Venus, Mars,
Mercurius, Jovis, Neptunus, Vulcanus, Apollo;'

each of whom presided over one of the months of the year: and one of the follies of which Alexander was guilty, according to Arrian, was his wishing to be enrolled among these, and to become the thirteenth of the first class of deities.

To the twelve great gods the Romans added eight others, called *selecti*, or chosen deities, who were Janus, Saturn, Genius, the Sun, the Moon, Pluto, Bacchus, and the ancient Vesta, or the Earth. After these ranked the Dii Semones or Semihomines, the demigods; and then the Indigetes, and those who were attached to certain localities, the household gods, the genii of

[1] It must be allowed that Tussis is not mentioned by any Latin writer, and rests on mere local tradition.

[2] Cicero, de Nat. Deor. v. 2: 'We see a temple to Fever on the Palatine Hill.' [It is to be remembered that by the Orientals many diseases were attributed to possession, and in Egyptian practice were exorcised as actual dæmons.—S. B.]

woods or rivers, nymphs, and other inferior beings. 'Cicero[1] arranges the gods in three classes: first, the Dii cœlestes, who are the same as the Dii majorum gentium; then the demigods and the Indigetes; and, thirdly, the virtues, which raise man to heaven, and have been themselves deified.' 'Varro maintained,' says the Abbé Banier, 'that there were known and unknown gods, and reduced all the Gentile deities to two classes. In the first were those whose names and offices were defined, as the Sun, Moon, Jupiter, Apollo, and others; and in the second were placed those of whom nothing positive was known, and to whom it was not lawful to raise altars or offer sacrifices. The philosopher Albricus considers the seven planets as the seven first gods of the heathen, whom he arranges in this order: Saturn, Jupiter, Mars, Apollo, Venus, Mercury, and the Moon. Pausanias,[2] Cicero, Hesychius, and many others, speak of altars raised to unknown deities; and, in the Acts of the Apostles, St. Paul mentions an altar to the Unknown God. Epimenides, the great prophet of the Cretans, was the author of this notion. Clemens of Alexandria endeavoured to include all the pagan deities under seven classes. In the first he placed the stars or heavenly bodies; in the second, the fruits of the earth and the gods who presided over them, as Ceres, Pomona, Vertumnus, Bacchus, and others; the third comprehended the Furies, and other gods of punishment; in the fourth he placed those of the passions and affections, as love, modesty, and others; the virtues, as concord, peace, and the rest, forming, according to him, the fifth class. The great gods, or Dii majorum gentium, occupied the sixth; and those of health, as Æsculapius, Hygieia, Telesphore, and some more, constituted the seventh.

'Iamblichus,[3] a Platonic philosopher, divided the gods into eight classes. In the first he placed the great gods, who, invisible by their nature, pervaded the whole universe: that is, doubtless, the Universal Spirit. The higher order of spirits, whom he called archangels, occupied the second rank; and others of an inferior grade, or angels, formed the third. In the fourth were the dæmons;[4] those whom he names greater Archontes—that is, genii who presided over this sublunary world and over the elements—constituted the fifth; and the sixth was composed of the minor Archontes, whose power ex-

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[1] De Legib. lib. ii. Banier, Myth. l. v. c. 5.
[2] In Eliacis.
[3] Iamblichus, de Mysteriis, sect. ii. c. 1.
[4] *Δαίμονες.*

tended over the gross and terrestrial matter. Heroes formed the seventh; and the souls of men admitted to the order of gods, occupied the eighth and last class. Other philosophers of the same sect included all the deities, or we may say, all the genii, in two classes: those called *anhyloi*, immaterial, and *hylaioi*, material, occupying the first; and the mundane and supramundane, the second. Mercury, or Hermes Trismegistus, is said to have admitted three classes of gods. In the first were those whom he called heavenly; in the second, the empyrean; and in the third, the etherean. The gods were also divided into public and private: the former being those whose worship was established and authorised by law; the latter, those who were chosen by individuals to be the peculiar object of their worship, as the gods Lares, the Penates,[1] and the souls of ancestors. The most general division is that which classed the gods under the two heads of the natural and the living deities: the former consisting of the stars and other physical objects; the latter, of men who had received divine honours. But these did not comprehend all the deities, since the genii of different kinds were there omitted. Finally, the system which we should prefer in treating of the deities of Greece and Rome, divides them into gods of heaven, of earth, and of the lower regions.'

These do not seem to accord with the divisions of the Egyptian Pantheon; and we may find in the Phœnician Cabiri a stronger analogy to the great gods of Egypt,—being, like them, eight in number, and their name implying that they were the *great*[2] gods of the country. The belief of their being the offspring of one great father, called Sydik, 'the just,' may also accord with the presumed notion of the Egyptians respecting the indivisible *One* mentioned in the books of Hermes.

Herodotus describes the Cabiri in Egypt as sons of Ptah, or Vulcan, whose statues[3] resembled those of the Egyptian Creator, and speaks of their temple at Memphis, which no one but the priest was allowed to enter; but the mystery observed respecting them, and the slight information obtained by the historian on

[1] This word might be derived from *Pi-noute*, 'the god,' but that we have a difficulty in accounting for the use of an Egyptian name at Rome. The origin of the Penates is doubtful; some attributing their introduction to Æneas, which is an idle fable: and a difference of opinion exists about their names; some supposing them to be Neptune and Apollo; others, Jove, Juno, and Minerva; and others, Cœlus and Terra.

[2] *Kabir*, or *Kebir*, 'great,' the common Hebrew and Arabic word, in use to the present day; as is *Sadek*, or *Sedeék*, the 'just.'

[3] Their statues were of wood, as were those of old times in Egypt, and in Greece, according to Pausanias (Corinth. ii. 19).

the subject, render his statement of little use in forming an opinion of their character and office.

Though the Egyptians may have admitted two general divisions of the gods, which were adopted by Pythagoras and Plato, under the head of *noetoi, intelligibles*, and *aisthetoi, sensibles*, or metaphysical and physical deities, yet many other distinctions subsisted in the members of their Pantheon; and the gradations, even among those of the first-mentioned class, were marked and numerous. The *aisthetoi*, or *sensibles*, were also distinctly separated from the emblematic types of their divinities.

The great gods of the Egyptians[1] were Chnumis, Amen, Ptah, Khem, Sati, Mut, or perhaps Buto, Bubastis, and Neith, one of whom generally formed, in conjunction with other two, a triad, which was worshipped by a particular city, or district, with peculiar veneration. In these triads, the third member proceeded from the other two; that is, from the first by the second, thus: the intellect of the Deity, having operated on matter, produced the result of these two, under the form and name of the world, or created things, called by the Greeks *kosmos*;[2] and on a similar principle appear to have been formed most of these speculative combinations. The third member of a triad, as might be supposed, was not of equal rank with the two from whom it proceeded; and we therefore find that Khonsu, the third person in the Theban triad, was not one of the great gods, as were the other two, Amen and Mut: Horus, in the triad of Philæ, was inferior to Osiris and Isis; and Anouke to Chnumis and Sati, in the triad of Elephantine and the Cataracts. I do not pretend to decide respecting the origin of the notions entertained by the Egyptians of the triad into which the Deity, as an agent, was divided; nor can I attempt to account for their belief in His manifestation upon earth: similar ideas had been handed down from a very early period, and, having been imparted to the immediate descendants of Noah and the Patriarchs, may have reached the Egyptians through that channel, and have been preserved and embodied in their religious system. And this appears to be confirmed by the fact of our finding the Creative Power, *whilst* in operation upon matter, represented by Moses as a *Trinity*, and not under the name indicative of unity until *after*

[1] Diodorus (lib. i. s. 13) mentions eight names, but fails to inform us if they were the eight great deities of Egypt. They are, 'Sol, Saturn, Rhea, Jupiter, Juno, Vulcan, Vesta, Mercury.' Evander says the eight gods of Egypt were Saturn, Rhea, Osiris, *Spiritus*, Heaven, Earth, Night, and Day.

[2] Plut. de Isid. s. 56.

that action had ceased. For the name given to the Deity by the divine legislator, when engaged in the creation of material objects, is not Ihôah [1] ('who is, and will be'), but Elohim,[2] 'the Gods;' and this plural expression is used until the seventh day, when the creation was completed.[3]

That the name Elohim is not intended to refer really to a plurality of Gods,[4] is shown by the use of the singular verbs, *bara*, 'created,' *ira*, 'saw,' *iamer*, 'said,' and others, following the plural Elohim, as may be seen throughout the first chapter of Genesis: and the first verse of that chapter bears the literal translation, 'In the beginning *He* the *Gods* created the heavens and the earth;' or more intelligibly and more closely in the Latin, 'In principio, *Dii* creavit[5] cœlum et terram,' where the plural substantive is followed by a singular verb. Thus, the very first verse of the Bible inculcates the doctrine of the Trinity; but under the title of 'He the Gods,' or 'Gods Almighty,' alone was the Deity known to the Patriarchs before the time of Moses: and the name of Ihôah was not revealed to the Hebrew lawgiver until the future deliverance of the Israelites from the hand of Pharaoh was promised, when the Deity made a covenant with him under that sacred name; God saying to Moses,[6] 'I am the Lord [Ihôah], and I appeared unto Abraham, unto Isaac, and unto Jacob, by the name of God [Gods] Almighty [Elohim Shadai[7]]; but by my name Jehovah[8] was I not known to them.

It may appear singular that the principle of a Trinity should be so obscurely noticed in the Old Testament; but the wise caution of the divine legislator foresaw the danger likely to result from too marked an allusion to what a people, surrounded

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[1] Written by us Jehovah, and translated in our version 'the Lord,' or when combined with Elohim, 'the Lord God.' (Clemens, Strom. lib. v. p. 240.) Many are of opinion that the Phœnician Ieuô, the Greek *Iaô*, *Iakchos* or *Iôbakchos*, and Javo, whence Jovis (the ancient name of Jupiter), Janus, Diana, and others, are derived from this name. (Hofmann's Lexicon.)

[2] That this word Elohim exactly answers to our word 'gods,' as applied to all gods generally, is evident from Exodus xxii. 20, and other parts of Scripture.

[3] It has been supposed that the Deity then returned to His unity under the name of Ihôah, and under that of Ihôah-Elohim He appears in connection with Man as an intellectual being; man as a material animal having been already noticed, 'male and female,' among the creations of the first chapter of Genesis (ver. 27), where the Deity only occurs as Elohim; and being mentioned in the next as an intellectual being, when God for the first time has the name of Ihôah added to the previous Elohim, under which He appeared as the Creative Power.

[4] Some have thought to trace in this an analogy to the notion of Plato, mentioned at the end of this chapter.

[5] Or, in French, 'Les Dieux créa.'

[6] Exod. vi. 3. [7] Or *Shidée*.

[8] Calmet observes, that when Moses uses the name (Ihôah), in speaking of times prior to this appearance (Gen. iv. 26, &c.), he adopts it by way of anticipation, and because at the time he wrote the Jews were acquainted with it; that is, he followed the custom of his own day, and not that of the Patriarchs.

by idolatrous polytheists, might readily construe into the existence of a plurality of gods: the knowledge, therefore, of this mystery was confined to such as were thought fit to receive so important a secret; and thus dangerous speculations and perversions were obviated, of which the fancies of an ignorant people, predisposed to idolatry, would not have failed to take advantage. It is unnecessary to enter into the question respecting the connection between the name of Ihôah and the nature of man, as represented in the second chapter of Genesis; but I have considered it proper, in noticing the adoption of the two, Elohim and Ihôah, to show the possibility of the Egyptian notions of a Trinity having been derived from early revelation, handed down through the posterity of Noah; and I now proceed to mention some other remarkable coincidences with Scriptural data.

Of these, the most singular are the character of Osiris, and the connection between *truth* and the *Creative Power*. In the latter we trace the notion, which occurs in the Christian belief, that the Deity 'of his own will begat us with the word of *truth*;'[1] and not only do the sculptures of the earliest periods express the same, and connect the goddess of truth with Ptah the Creative Power, but Iamblichus also, in treating of the ancient mysteries, asserts it in these words: 'Whereas he makes all things in a perfect manner, not deceptively, but artificially, *together with truth*, he is called Ptah; but the Greeks denominate him Hephæstus, considering him merely as a physical or artificial agent,' and not looking upon him, as they ought, in an abstract or metaphysical light. But the discloser of truth and goodness on earth was Osiris; and it is remarkable that, in this character of the manifestation of the Deity, he was said to be 'full of goodness (grace) and truth,' and after having performed his duties on earth, and fallen a sacrifice to the machinations of (Typho) the Evil One, to have assumed the office in a future state of judge of mankind. At Philæ, where Osiris was particularly worshipped, and which was one of the places where they supposed him to have been buried, his mysterious history is curiously illustrated[2] in the sculptures of a small retired chamber, lying nearly over the western adytum of the temple. His death and removal from this world are there described; the number of

[1] Gen. Epistle of James, i. 18. Orpheus says, 'I call to witness the word of the Father, which He first spoke, when He established the universe by His will.' (Justin Martyr, Orat. ad Gentes.)

[2] A copy of these sculptures is given in the plates of the Royal Society of Literature (Young, Hieroglyphics), pl. 66, 67, 68, and 69.

twenty-eight lotus plants points out the period of years he was thought to have lived on earth; and his passage from this life to a future state is indicated by the usual attendance of the deities and genii, who presided over the funeral rites of ordinary mortals.[1] He is then represented with the feathered cap, which he wore in his capacity of judge of Amenti; and this attribute shows the final office he held after his resurrection, and continued to exercise towards the dead, at their last ordeal in a future state. I have already stated that the Monad, or single Deity, was placed above and apart from the Triads, and that the great gods of the Egyptian Pantheon were the deified attributes of the '*One*.' The same idea of a Monad, and even of a triple Deity, was admitted by some of the Greeks into their system of philosophy; and 'Amelius,' according to Proclus, 'says, the Demiurgos or Creator is triple, and the three Intellects are the three Kings—He who exists, He who possesses, He who beholds. And these are different; therefore the First Intellect exists essentially, as *that which exists*. But the Second exists as the Intelligible in him, though possessing that which is before him, and partaking altogether of that, wherefore it is the Second: but the Third exists as the Intelligible in the Second, as did the Second in the First; for every Intellect is the same with its conjoined Intelligible; and it possesses that which is in the Second, and beholds or regards that which is in the First: for by how much greater the remove, by so much the less intimate is that which possesses. These three Intellects, therefore, he supposes to be the Demiurgi, the same with the three Kings of Plato, and with the three whom Orpheus celebrates under the names of Phanes, Ouranos, and Kronos, though, according to him, the Demiurgos is more particularly Phanes.'[2] Several others also mention the triple nature of the Deity; and 'from the different Orphic fragments, we find,' as Mr. Cory[3] observes, that 'the Orphic trinity[4] consisted of

Metis,	Phanes or Eros,	Ericapæus:
which are interpreted,		
Will or Counsel,	Light or Love,	Life or Life-giver.
From Acusilaus:		
Metis,	Eros,	Ether.

[1] Plut. de Isid. s. 35: 'the rising again of Osiris, and his new life.'

[2] Procl. in Tim. ii. 93. Cory, p. 305.

[3] Cory, 'Ancient Fragments,' p. 355.

[4] The Orphic ceremonies, according to Herodotus, were the same as those of the Pythagoreans and Egyptians.

From Hesiod, according to Damascius:

Earth,	Eros,	Tartarus.

From Pherecydes of Syros:

Fire,	Water,	Spirit or Air.

From the Sidonians:

Kronos,	Love,	Cloudy Darkness.

From the Phœnicians:

Ulomus,	Chusorus.	The Egg.

From the Chaldæan and Persian oracles of Zoroaster:

Fire,	Sun,	Ether.
Fire,	Light,	Ether.

From the later Platonists:

Power,	Intellect,	Father.
Power,	Intellect,	Soul or Spirit.

'By the ancient theologists, according to Macrobius, the sun was invoked in the mysteries, as

Power of the world, } Light of the world, Spirit of the world;

and to this may, perhaps, be added, from Sanchoniatho, the three sons of Genus,

Fire,	Light,	Flame.'

Plutarch[1] gives

Intelligence,	Matter,	*Kosmos*, beauty, order, or the world;

the first being the same as Plato's,

Idea,	Mother,	Offspring,
Exemplar, or Father,	Nurse, Receptacle of generation,	Production.

'Of these three, intelligence, matter, and *kosmos*,' he says, 'universal nature may be considered to be made up, and there is reason to conclude that the Egyptians were wont to liken this *nature* to what they called the most beautiful and perfect triangle, the same as Plato himself does in that nuptial diagram he has introduced into his *Commonwealth*. Now in this triangle, which is rectangular, the perpendicular is imagined equal to 3, the base to 4, and the hypothenuse to 5. In which scheme the perpendicular is designed to represent the masculine nature, the base the feminine, and the hypothenuse the offspring of both:

[1] Plut. de Isid. s. 56.

and accordingly, the first will apply to Osiris, or the prime cause; the second, to Isis, the receptive power; and the last, to Orus, or the effect of the other two. For three is the first number composed of even and odd; 4 is a square, whose side is equal to the even number 2; but 5, being generated as it were out of both the preceding numbers, two and three, may be said to bear an equal relation to both, as to its common parents. So, again, the mere word which signifies the universe of beings is of a similar sound with this number,[1] as *to count five*[2] is made use of for counting in general.' Plato[3] says the Egyptians taught numbers to children in their play, by distributing amongst them a certain number of fruits, or other things, the same number to be given to many or to few children, so that by dividing them amongst themselves they learnt lessons in arithmetic; and all sorts of numbers were given to them in their games of play as arithmetical exercises.

The Egyptians wrote from right to left in the hieratic and demotic (or enchorial), which are the two modes of *writing* here mentioned. The Greeks also in old times wrote from right to left, like the Phœnicians, from whom they borrowed their alphabet. This seems the natural mode of writing; for though we have always been accustomed to write from left to right, we invariably use our pencil, in shading a drawing, from right to left, in spite of all our previous habit; and even our down-strokes in writing are all from right to left. The Arabs say, 'It is more reasonable to see where the pen is coming, than not to see where it is going.' It was continued by the Etruscans, the early imitators of the Greeks, to a very late period. Dr. Brugsch very ingeniously observes[4] that though in demotic the general direction of the writing was from right to left, each individual letter was formed from left to right, as is evident in the unfinished ends of horizontal letters when the ink failed in the pen. In writing numbers in hieratic and enchorial they placed the units to the left—that is, last—according to their mode of writing from right to left. Thus 1851 would stand 1581. In 18 they would first come to the ten, and in 13,422 they would begin with the thousands. The same mode of beginning with the largest number

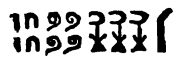
[1] πέντε, πέντε.

[2] The word πεμπάσασθαι is taken from counting by the five fingers—an ordinary method in early times. (See *Athenæum*, No. 2606.) The Egyptians sometimes represented the number 5 by a star, having, as usual, five rays; because, as Horapollo pretends, that is the number of the planets. (Horapollo, i. 13.)

[3] Laws, book 57.

[4] Gram. Demot. pp. 15, 16.

is followed in hieroglyphics (224,31), whether written from right to left, or from left to right. This is like our arrangement of the thousand first and the unit last, in our writing from left to right. The Arabs, from whom we borrowed this, think we ought to have changed the arrangement, as we write in an opposite direction. But they borrowed their numerals from India (hence called by them *Hindee*, 'Indian'), and there the arrangement is as in our own, 133 of our notation, for example, being thus written by the scribes of the Indian continent.



On the subject of numbers, the same author makes the following remarks: 'It is my opinion, when the Pythagoreans appropriate the names of several of the gods to particular numbers, as that of Apollo to the unit, of Diana to the duad, of Minerva to the seven, and of Neptune to the first cube,[1] that they allude to something which the founder of their sect saw in the Egyptian temples, to some ceremonies performed in them, or to some symbols there exhibited;'[2] the same 'Pythagoreans also look upon Typho to have been of the order of dæmons, as, according to them, "he was produced in the even number fifty-six." For as the power of the triangle is expressive of the nature of Pluto, Bacchus, and Mars; the properties of the square of Rhea, Venus, Ceres, Vesta, and Juno; and of the dodecagon of Jupiter; so (we are informed by Eudoxus) is the figure of 56 angles expressive of the nature of Typho.'[3] They have likewise 'a great detestation for the number 17,'[4] and 'call the 17th day of the month the day of obstruction; for the middle number 17, falling in between the square 16 and the parallelogram 18 (the only two plain numbers whose circumferences are equal to their areas), stops up the way between them, divides them from each other, and hinders them from uniting.' In another place,[5] he says, 'The Pythagoreans honour numbers and geometrical diagrams with the names of the gods: thus they call the equilateral triangle, head-born Minerva and Tritogeneia, because it may be equally divided by three perpendicular lines, drawn from each of the angles; the

[1] 'Simplicius, in his Commentary on Aristotle's Treatise *de Cœlo*, tells us that a cube was called by the Pythagoreans harmony, because it consists of twelve bounding lines, eight angles, and six sides; and twelve, eight, and six are in harmonic proportion.' (Taylor's Theoretic Arithmetic, p. 155.)

[2] Plut. de Isid. s. 10. [3] Ibid. s. 30.

[4] Ibid. s. 42. [5] Ibid. s. 76.

unit they term Apollo, as to the number two they have affixed the name of Strife and Audaciousness, and to that of three, Justice; in like manner the number 36, their *tetrakys*, or sacred quaternion, being composed of the first four odd numbers added to the first four even ones, as is commonly reported, is looked upon by them as the most solemn oath they can take, and called *Kosmos*, the *world* or *order*.' 'To the *good principle* they give the names of "the unit, the definite, the fixed, the straight, the odd, the square, the equal, the dexterous, and the lucid;" whilst to the *evil one* they give the appellation of "the duad, the indefinite, the movable, the crooked, the even, the oblong, the unequal, the sinistrous, and the dark."'[1]

Without entering into all the abstruse speculations respecting numbers, I shall add a few observations, principally in reference to the opinions entertained by the Egyptians. 'According to their doctrine, Thales defined numbers to be a collection of monads;' and 'some of the Pythagoreans said that the monad was the confine of number and parts; for from it, as from a seed and an eternal root, ratios are contrarily increased and diminished; some through a division to infinity being always diminished by a greater number, while others being increased to infinity are again augmented.'[2] They also 'called the monad intellect,[3] male and female, God, chaos, *darkness*, Tartarus, Lethe, the axis, the sun, and Pyralios, Morpho, the tower of Jupiter, Apollo, the prophet,' and many other names; and Damascius, in his treatise Περὶ Ἀρχῶν, informs us that 'the Egyptians asserted nothing of the first principle of things, but celebrated it as a thrice unknown *darkness* transcending all intellectual perception.' To the duad they gave the appellation 'audacity, matter, the cause of dissimilitude, the interval between multitude and the monad,' ascribing it to Diana and some other deities, to Fate and Death; and the triad[4] was considered by them to be intellect, the origin of virtue, and to belong to Justice, Saturn, and many other divinities. According to Servius, 'they assigned the perfect number three to the Great God;' and the tetrad they looked

[1] Plut. de Isid. s. 48.

[2] Taylor's Theoretic Arithmetic, p. 4; and Aristotle.

[3] [Somn. Scrip. c. 6. His (Macrobius') monad; beginning and end of all.—G. W.]

[4] This number is observable in the 'Tria virginis ora Dianæ,' the trident of Neptune, the 'trifidum fulmen Jovis,' the three sons of Saturn, the three-headed Cerberus, the three Fates, the Graces, the Furies, the three judges of Hades, and others. The expression of Virgil (Ecl. viii. 75), 'Numero Deus impare gaudet,' applies to the same number, as is shown by the preceding verses, and by the 'Necte *tribus* nodis *ternos*, . . . colores.' (Conf. Æn. vi. 229, *et alib.*)

upon as the greatest miracle, a god after another manner than the triad, a manifold, or rather every divinity; peculiarly applied to Mercury, Vulcan, Hercules, and Bacchus; and they held that the power of the duad subsisted in the four. Thus Pythagoras asks, 'How do you count?'—Mercury: 'One, two, three, four.'—Pyth.: 'Do you not see that what are four to you, are ten and our oath?' those 1, 2, 3, 4, added together, forming ten, and four containing every number within it. Four was particularly connected with Mercury, as the deity who imparted intellectual gifts to man; to Vulcan it was assimilated as the Demiurgos, whence the *Tetraktys* was the mystic name of the Creative Power; and three they looked upon as 'embracing all human things.' 'Know God,' says Pythagoras, 'who is number and harmony;' 'the human soul,' according to that philosopher, was 'number moving itself;' and some styled *number* 'the father of gods and men.' Many were the fanciful meanings attached to numbers by the Pythagoreans, which it is unnecessary here to introduce: I shall therefore only observe that the opinion respecting the 9 was, that 'there could be no number beyond it, and that it circulates all numbers within itself, as is evident from the retrogression of numbers. For their natural progression is as far as 9; after which their retrogression takes place, 10 becoming once more the monad. Again, 9 being added to each of the numbers 1, 2, 3, 4, and the rest, it will produce 10, 11, 12, 13, 14, &c.: no elementary number can therefore be beyond the ennead;' whence the Pythagoreans called it 'ocean and the horizon, all numbers being comprehended by, and revolving within, it;' but the 'decad was called heaven, being the most perfect boundary of number;' and some characterised numbers as the envelopes of being.

That Pythagoras borrowed from Egypt his ideas on this subject, is highly probable: such appears to have been the opinion of the ancients themselves; and it would be curious to ascertain if our common multiplication table, for which we are indebted to that philosopher, was of Egyptian origin. It is however evident from modern discoveries in the language and writing of that people, that the numerical system of the Pythagoreans tallies with the formation of the Egyptian numbers, according to that mode of representing them in the hieratic character, which is applied to the days of the month, in the sense of the 1st, 2nd, 3rd, &c., where 1, 2, 3, and 4 alone are perfect numbers; 5, 6, 7, and 8 being composed of 3 + 2, 3 + 3, 3 + 4, and 4 + 4; 9, from its completing the series, being a single

Nº	HIERATIC	ENCHORIAL
1st	1	1
2d	2	2
3d	3	3. 3
4th	7 4	2. 2
5th	23	23
6th	33	33
7th	37	32
8th	77 44	22
9th	2	2
10th	1. 1	1
11th	11	11
12th	21	21
15th	231	231
20th	21	2
27th	321	321
28th	771	221
29th	21	21

Nº	HIEROGLYPHIC	HIERATIC
1/3	111	4
1/4	1111	44
1/6	111111	2
1/11	1	1

Nº	HIEROGLYPHIC	RATIC
1	1	1
2	11	4
3	111	4
4	1111	44
5	11111	7
6	111 111	1
7	1111111	2
8	1111 1111	11
9	11111 1111	2
10	∩	∩
11	∩1	1 ∩
20	∩∩	∩∩
21	∩∩1	1∩
32	∩∩∩11	4∩
43	∩∩∩ ∩111	44
54	∩∩∩∩ ∩1111	44
65	∩∩∩∩ ∩∩1111	2∩
76	∩∩∩∩∩ ∩∩1111	1∩
87	∩∩∩ ∩∩∩ ∩∩11111	2
98	∩∩∩∩ ∩∩∩ ∩∩11111	1
100	𓍢	1
200	𓍢𓍢	1

and perfect number, 'circulating,' as the Pythagoreans say, 'all numbers within itself,' and 10 commencing a new series, and 'becoming again the monad.'

The hieroglyphic numbers[1] are different, being arranged in units, tens, hundreds, and thousands; and the ordinary hieratic are partly formed from the hieroglyphic units, the 5, 6, 7, 8, and 9 being ciphers, as is also one form of the 4. For an illustration of which and the former statement, I refer the reader to the accompanying Plate.

The speculations of later times have ascribed the same and some other significations to the numbers, as to

Equal to 10.

1. Unity. Divine thought. Wisdom. Divinity. The universal principle, and centre of all.
2. Will. Water. The two natures of man. Perversity.
3. Action. Matter. Temporal immaterial agents who do not think.
4. Intellect. Intellectual man. Wisdom. All that is active. Religion. Immaterial agents who think.
5. The evil being. Idolatry. Self-sufficiency. $3 + 2$.
6. Formation of the world. Radius, and the natural division of circle. Piety. $3 + 3$.
7. Source of man's intellectual and sensible properties. Relating to the end of the world. Love of esteem. Intellectual agents (having taken the place of man). $4 + 3$.
8. Intellectuality both in body and soul. The divine united with the human nature. Love. Good will. Justice. $4 + 4$.
9. Man not purified from sin. Physical envelope of man. Creation of the body, and its nature. Curiosity. The number of every spiritual limit. Intellect united with sin. $4 + 5$.
10. Limit of all. Man purified from sin, returning by a new birth to unity, whence he proceeded. Decomposition of the circle, or the world.

Having now mentioned some of the numerous meanings attached to the numbers,[2] I return from this digression to the consideration of the religious doctrines of the Egyptians.

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[1] For further accounts of the Egyptian numbers, see the Grammar of Champollion, by whom the numerical system commenced by Dr. Young was very fully demonstrated and carried out. [A fuller table, with fractions, is given by Professor Eisenlohr, 'Mathematische Papyrus,' pp. 8, 9.—S. B.]

[2] It is unnecessary to point out those which so frequently occur in the Bible, and every one must perceive that the constant occurrence of 4, 7, and other numbers is not accidental.

The manifestation of the Deity, His coming upon earth for the benefit of mankind, and His expected interposition, were ideas which, even in the patriarchal times, had always been entertained, having been revealed to man from the earliest periods, and handed down through successive ages even to the time when that event took place; we are therefore less surprised to find it introduced into the religion of the Egyptians, and forming one of the most important tenets of their belief. Indeed, nothing can be more satisfactory than this additional proof of its having been a tradition among the early inhabitants of the earth; and it was natural that the Egyptians should anticipate the fulfilment of this promise, and found thereon the great mystery of the relative connection between the Deity and mankind. The fact of this, and the doctrine of a Trinity being entertained by so many distant nations, naturally leads to the inference that they had a common origin; and most persons will admit that they appear to have been derived from immediate revelation, or from the knowledge imparted to the early inhabitants of the world, rather than from accidental speculation in distant parts of the globe,—a remark which applies equally to the creation of man, the deluge, the ark or boat, and numerous mysterious doctrines common to different people. From whatever source the Egyptians originally borrowed their ideas on these subjects, it is evident that they refined upon them, and rendered their metaphysical speculations so complicated, that it required great care and attention on the part of the initiated, to avoid confusion, and to obtain a perfect understanding of their purport. Hence it happened that those who had only obtained a limited insight into this intricate subject, speedily perverted the meaning of the very groundwork itself; and the Greeks and Romans, who were admitted to participate in a portion of those secrets, fell into a labyrinth of error, which gave to the whole system the character of an absurd fable. Indeed, they went still further, and, taking literally certain enigmatical ceremonies, they converted speculative and abstract notions into physical realities, and debased the rites they borrowed from Egypt by the most revolting and profane excesses, tending to make religion ridiculous, and to obviate all the purposes for which it had been instituted. For, however erroneous the notions of the ancients were, however mistaken in the nature of the Deity, and however much truth was obscured by the worship of a plurality of gods, still the morality inculcated by religion and practised by good men was deserving of commendation; and

we cannot but censure those who degraded what was good, and added to error by the misapplication of mysterious secrets.

This perversion of certain allegorical rites, and the misinterpretations given by the Greeks and Romans to some religious customs of the Egyptians, have, in many instances, led to the idea that the priesthood of Thebes and Memphis, under the plea of religion, were guilty of enormities which would shock the most depraved; and an erroneous judgment has been formed from the mode in which the worship of Osiris was conducted by his votaries at Rome. I will not pretend to say that the Romans did not find the ceremonies of that worship already degraded, in the Græco-Egyptian city of Alexandria: this is highly probable; but the reason of its perversion there resulted from the same cause as at Rome—the misapplication by foreign votaries of tenets they failed to comprehend; for it may be doubted if such rites were at any time known to the Egyptians; and if any external ceremonies carried with them an appearance of indelicacy, they were merely emblematic representations, as in the case of the phallic figures, indicating the generative principle of nature. Here, as usual with the Egyptians, it was the abstract idea which alone occurred to the mind of those who understood the religion they professed; but the Greeks and Romans, owing to the grossness of their imaginations, saw nothing beyond the external form that presented itself to the eye, and instead of the power, or abstract cause, they merely thought of its physical character. Hence the absurd worship of the mere agent in lieu of a first cause, and hence, in consequence, all those revolting scenes by which religion was degraded and the human mind corrupted; the more deplorable, since mankind is ever prone to commit the greatest excesses when their acts are believed to have the sanction of religion. Indeed, even at a time when speculative doctrines have not yet suffered any gross perversion of their principles, the ignorance and credulity of man frequently distort what is reasonable; and some minds are not possessed of sufficient judgment to separate the really religious from the superstitious part of their creed, or to discriminate between the mysterious or metaphysical, the fabulous, and the moral. A remarkable instance of the perverted meaning of a religious custom, by the ignorance of Greek and Roman writers, occurs in the Pallakides or Pellices of Amen, mentioned by Diodorus[1] and Strabo. The former, it is true,

[1] Diodor. i. 47.

only describes them under the name of Pallakides of Jupiter, in noticing their tombs; but Strabo[1] asserts that, at Thebes, 'a virgin, conspicuous for birth and beauty, was sacrificed to Jupiter, the deity of that city, and that a class of persons, called *pellices*, "harlots," dedicated to his service, were permitted to cohabit with anyone they chose.'

That certain women, of the first families of the country, were devoted to the service of the god of Thebes, is perfectly true, as I have had occasion already to remark; and they were the same whom Herodotus mentions under the name of *gynaikes hiereiai*,[2] or 'sacred women, consecrated to the Theban Jove.' The statement of Diodorus, that their sepulchres were distant from the tomb of Osymandyas ten stadia, or little more than 6000 feet, agrees perfectly with the position of those where the queens and princesses were buried,[3] in the Necropolis of Thebes; and is highly satisfactory, from its confirming the opinion formed from the sculptures, respecting the office they held. For though we are unable to ascertain the exact duties they performed, it is evident that they assisted in the most important ceremonies of the temple, in company with the monarch himself, holding the sacred emblems which were the badge of their office; and the importance of the post is sufficiently evinced by the fact that the wives and daughters of the noblest families of the country, of the high-priests, and of the kings themselves, were proud to enjoy the honour it conferred. Such being the case, shall we not reject with contempt so ridiculous a story, and learn from it how little reliance is to be placed on the Greek and Roman accounts of the rites of Egypt? And, indeed, if this absurd tale were not refuted by the sculptures of Thebes, mere reason would tell the most credulous that a custom so revolting to human nature, and so directly at variance with the habits of a civilised nation, could not possibly have existed in any country where morality was protected by severe laws, or have been tolerated by the Egyptians, who were unquestionably the most pious of all the heathen nations of antiquity.

To depend, therefore, upon the Greek theogony for the nature and character of the Egyptian deities, is equally useless; and though in some we may trace the same origin, and perceive the same primitive idea which suggested their attributes, so little reliance can be placed upon the resemblance, and so little certainty

[1] Strabo, xvii. p. 561. [2] Herodot. i. 182, and ii. 54. [3] 'Egypt and Thebes,' p. 80.

is there of their not having been altered by the Greeks, that the information obtained from this source can seldom be admitted, unless confirmed in some degree by the Egyptian monuments. No stronger instance of this is required than in the case of the god Anubis, who is repeatedly stated by Greek and Roman writers to have borne the head of a dog, and who is invariably represented by the Egyptians with that of a jackal, or even under the form of the entire animal; and this, with several similar misconceptions, may serve to give some idea of the confusion into which they would lead us respecting the theogony of the Egyptians. However, as is sometimes the case, amidst this confusion slight traces may be observed of the original system from which the Greeks derived their notions; and as Amen, the principal member of the Theban trinity and king of the gods,[1] was distinct from the Monad, or sole Deity in Unity, so Jupiter, though considered by the Greeks to be king of the gods, was merely a deified attribute of the Deity.

It is evident that the philosophers of Greece were constantly guilty of misconceptions respecting the very principles of the Egyptian religion, and some[2] believed that 'the Egyptians ignorantly employed material fables, considering and calling corporeal natures divinities—such as Isis, earth; Osiris, humidity; or Typho, heat;' without distinguishing between the different conditions of metaphysical, physical, and other objects of worship.

In Greek mythology, some of the fables are allegorical, some moral, some physical, some historical, and some again are mere metaphysical speculations. This, however, seems only in part to apply to the theogony of the Egyptians, whose religion was founded on a different basis, or who, at all events, made the physical and historical portions subservient to, rather than a part of, their system; and if they had even in early times interwoven any events of history in their religion, they expunged them at a subsequent period, and gave to their religion a metaphysical character, totally unconnected with the tales of their origin, or the colonisation of their country. Indeed, history seems so entirely excluded from their mythological system, and so completely a thing apart from it, that we may doubt if it was admitted into it even at the earliest periods; and if, in the

[1] I have shown the error of making Saturn, the father of Jupiter, the same as the Egyptian Seb.

[2] Sallust on the Gods and the World, chap. iv., quoted by Taylor, Introd. to Plato, p. 39.

chronicles of Egypt, mention is made of the reign of certain gods upon earth, we may be persuaded that these are merely an allegorical mode of stating facts which really happened, and are totally unconnected with the tenets of their religion. For, independent of the positive assurances of the Egyptians themselves that no deity ever lived on earth, we are relieved from the difficulty this appears to present, by the simple suggestion[1] that the rule of the gods refers to that of the different colleges of priests of those deities, which successively held the sovereign power, when Egypt was ruled by a hierarchy, previous to the election of a king.

That the periods assigned for the duration of these reigns are totally inadmissible, is evident; but dates in the early history of many people are equally vague and arbitrary, even where there is no reason to doubt the truth of the events to which they are affixed. In the history of ancient nations, the early portion usually consists of mere fable, either from real events having been clothed in an allegorical garb, or from the substitution of purely fanciful tales for facts, in consequence of the deficiency of real data: to this succeeds an era when, as manners and habits become settled, amidst fable and allegory, some descriptions of actual events are introduced; and at length history, assuming the exalted character that becomes it, is contented with the simple narration of fact, and fable is totally discarded. But such is the disposition in the human mind to believe the miraculous, that, even at a period when no one would dare to introduce a tale of wonder unsupported by experience, credit still continues to be attached to the traditions of early history, as though the sanction of antiquity were sufficient to entitle impossibilities to implicit belief. A pure fable is credited, allegories are taken as real events, and no one dares to withdraw the veil which clothes substantial facts in an almost transparent allegory; as few Romans in the Augustan age would venture to doubt the miraculous kindness of their founder's wolf, or the real existence of the Egerian nymph. The religion of the Greeks bears the evidence of having been formed upon popular legends, or fairy tales, to which a superstructure derived from metaphysical speculation was afterwards added; and though many of their deities were of Egyptian origin,[2] the office and character

[1] This was also the opinion of the learned Larcher.

[2] Banier, Mythol. vol. i. pp. 25, 28, 44, 66, 67, 76, 80, 83, 84, 115, 118, 121, 189, 303, &c.

of some seem rather attributable to accidental analogy, discovered at a subsequent period, with those of the Egyptians, and other people whose religion had been long modelled into a systematic form, than to any positive notions they previously had upon the subject. And thus we may account for the inconsistency of Jupiter being considered the same as Amen, one of the eight great gods of Egypt, and Saturn his father as one of the second order of deities; an error which originated in Seb being the parent of Osiris and Isis, and having in Egypt the title of 'Father of the Gods.'

Many of their popular legends may have been the offspring of foreign notions, accidentally received from other people, and altered by time or local prejudices; and when we recollect that the mythology of Greece was chiefly invented, or at least arranged, by the poets, we may readily account for the unsubstantial texture of its construction.

In the history of Greece, the admission of mythological tales was much more resorted to than in that of Rome, where events may be more readily traced than in the fabulous accounts of Greek writers; and though the Romans sacrificed truth to their excessive vanity in many statements put forth in their early history, they did not permit the adventures of the gods to form part of the actions of men, in order to account for ordinary occurrences, or to ennoble the pedigree of simple individuals. The same remark applies to the history of the Egyptians; and, however they may have clothed the mysteries of their religion in allegorical fable, they neither derived their origin from deities, nor degraded the nature of the Divinity by bringing it down to the level of mankind. But if historical fable did not form part of the belief of the Egyptians, and if their religious system was distinct from the records of past events, allegory and moral fable were admitted without reserve, and physical emblems were used as the representatives of abstract notions. Indeed, though the main feature of their religion was metaphysical speculation, we find that physical objects entered into the system; and it is probable that the worship of external objects, as the sun and other heavenly bodies, formed at an early period a principal part of their religious worship. The two main principles on which the religion of Egypt was based, appear to be, the existence of an Omnipotent Being, whose various attributes being deified, formed a series of divinities, each worshipped under its own peculiar form, and supposed to possess its

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particular office; and the deification of the sun and moon, from which it might appear that a sort of Sabæan worship had once formed part of the Egyptian creed.

The sun, being the chief of heavenly bodies, was considered a fit type of dominion and power; and the idea of an intellectual sun was merely the union of the abstract notion of a primary agent with the apparent and visible object.[1] For the sun was both a physical and metaphysical deity, and under these two characters were worshipped Ra and Amen-ra, the real sun, the ruler of the world, in the firmament, and the ideal ruler of the universe as king of the gods. Of the allegorical portion[2] of their religion we have frequent instances, as in the story of Isis and Osiris, whose supposed adventures, according to one interpretation, represented the Nile and its inundation: and numerous other natural phenomena were in like manner typified by figurative or emblematical conceits. The gods had also their peculiar symbols, which frequently stood not only for the name, but also for the figure, of the deity they indicated; as the Cynocephalus ape was the sign and substitute for Thoth; the hawk and globe indicated the Sun, and the crocodile was the representative of the god Sebak. Nor were moral emblems wanting in the religion of the Egyptians; the figure of Justice with her eyes closed purported that men were to be guided by impartiality in their duties towards their neighbours; the rat in the hand of the statue of Sethos at Memphis recorded a supposed miracle, and urged men to confide in the deity; and the tender solicitude of Isis for her husband was held up as an example worthy the emulation of every wife. Many were the allegorical and symbolical beings who formed part of their

[1] According to the later mythology, Nu, the primordial water, was that out of which the gods and all things sprang. In that primeval chaos he formed himself: he was the only one, he who exists by his essence; the only one who lives in matter, the only generator in heaven and earth who has not been engendered, 'the father of fathers and mother of mothers.' It has been supposed that the gods sprang or emanated from him, and that he represented in himself a kind of trinity of father, mother, and son. He created his own limbs, which were the gods, and from him proceeded the local triads. Hence proceeded the inferior deities or demiurgi: Ptah, the creator of the sun and moon; Tum, or Atum, the creator of things visible and invisible; and Chnoumis, the creator or builder of mankind. As the attractor of light and the hidden forces of nature, he becomes Amen the Occult, and as the beneficent being of the world, Osiris. The same deity said to the sun, 'Come to me,' and at his orders Shu separated the earth and waters into two masses, the celestial and terrestrial, and excited the hostility of the powers of evil. There was consequently the celestial and terrestrial Nile struggling against the desert, the assimilation and identity with the sun, which was associated with the principal deities of the Pantheon in its diurnal and nocturnal course. (Maspero, 'Hist. Ancienne des Peuples de l'Orient,' p. 62.)—S. B.

[2] Banier, Mytholog. vol. i. c. iii. p. 52, on the fables of the Greeks; and p. 175, on the theogony of Egypt.

Pantheon; and not only was every attribute of the Divinity made into a separate deity, but genii, or imaginary gods, were invented to assume some office, either in relation to the duties or future state of mankind. Even the genius of a town, a river, or a district, was created in imagination, and worshipped as a god; and every month and day, says Herodotus,[1] were consecrated to a particular deity. It may reasonably be supposed that in early times the religion of Egypt was more simple, and free from the complicated host of fanciful beings who at a later period filled a station in the catalogue of their gods; and that the only objects of worship in the valley of the Nile were, 1st, the deified attributes of the Creative Power, and of the divine intellect; 2nd, the sun and moon, whose visible power has so generally been an object of veneration among mankind in the early ages of the world; and, 3rd, we may add, the president of that future state to which the souls of the dead were supposed to pass after they had left their earthly envelope. It is difficult to decide whether the Egyptians had originally the belief in a future state, or if the immortality of the soul was a doctrine suggested at a later period, when philosophy had remodelled their religious notions; suffice it to say that the oldest monuments which remain bear ample evidence of its having been their belief at the earliest periods of which any records exist, and Osiris the judge and president of Amenti is mentioned in tombs belonging to cotemporaries of the kings who erected the Pyramids, upwards of 2000 years before our era. Indeed, if at any early period the religion of Egypt bore a different character, or if any great change took place in its doctrines, this must have been long before the foundation of the monuments that remain; and, with the exception of some addition to the catalogue of minor deities, and an alteration in the name of Amen,[2] we perceive no change in the religion from the earliest times to the reigns of the Ptolemies and Cæsars.[3] That several genii, or minor gods, particularly those who were supposed to perform inferior functions in a future state, and some local divinities, were added at various periods, is highly probable, but no change appears to have taken place in the form of worship, or in the main tenets of the religion: the ceremonies of the temple may have become more splendid, the offerings more

[1] Herodot. ii. 82.

[2] I shall have occasion to mention this afterwards in chapter xiii.

[3] There is, however, reason to believe that in very early times the Egyptians had a sort of sylvan worship long before the religion was formed of which we see the existing records.—G. W.]

rich, or the increased dimensions of the temples may have admitted a larger number of contemplar gods; and in the times of the Ptolemies and Cæsars the rites of Osiris may have become more generally preferred: but no change was effected in the religion itself,[1] and the preference given to any peculiar deity was only what had always happened in Egypt, where each town or district paid the greatest honours to the god who was supposed immediately to preside over it. Even the alteration which took place in the name of Amen, and the introduction of the worship of the sun with rays, represented at Tel el Amarna and some other places, about the time of the 18th Dynasty, cannot be looked upon as changes in the religion; and Sarapis, of foreign introduction, was obliged to conform to the customs of the Pantheon, to which he was rather attached than admitted, by the caprice of a foreign monarch. Unfortunately, an impenetrable veil, concealing from our view the earliest periods of Egyptian history, forbids us to ascertain the original character of the religion: we are introduced to it as to the civilisation of that people, when already fully perfected; and we can only speculate on its previous condition, before metaphysical theories had modelled it into the form in which we now behold it in the sculptures of the existing monuments. Before we proceed to inquire into the nature and attributes of the gods, it may not be improper to examine the opinions of Greek writers respecting the theogony of Egypt. Diodorus,[2] who seems to borrow his ideas respecting the creation of the world from the Egyptians, says, that in the beginning the heavens and earth had only one form, being united in their nature; but having become separated afterwards, the world took the character we now behold. By the movement of the atmosphere, the igneous parts rose, which gave to the sun and other heavenly bodies their rotary movement; and a solid matter was precipitated to form the sea and earth, from which fish and animals were produced, nearly in the same manner as we still see in Egypt, where an infinity of insects and other creatures come forth from the mud, after it has been inundated by the waters of the Nile.[3] 'Eusebius,' as the Abbé Banier remarks, 'has justly observed that this system, as well as

[1] In general terms, but the following extension of the Osiris worship took place by degrees: the dead were associated with him, and had his name preferred to theirs, which does not appear till the 18th Dynasty in general use; and the terms 'truth-speaking' or 'justified,' which involve the judgment of the dead, come in at the same time.—S. B.

[2] Diodor. ii. 7.

[3] Ovid. Met. i. 8, v. 422; and Plin. ix. 58.

that of the Phœnicians, which is derived from the same source, gives to the Creator no part in the formation of the universe. To confirm his opinion, he quotes a passage of Porphyry, who, in his epistle to Anebo, an Egyptian priest, writes,[1] that Chæremon and others had thought that nothing was anterior to this visible world; that the planets and stars were the real gods of the Egyptians, and that the sun ought to be looked upon as the guardian of the universe; and it may be remarked, that the summary of Egyptian theology given by Diogenes Laertius from Manetho and Hecatæus is in the same spirit, which considers that matter was the first principle, and the sun and moon the first deities, of that people. It has, however, been shown from Eusebius, that the Egyptians believed in an intelligent Being, called Kneph, who presided over the formation of the world. Porphyry states that they represented him under the figure of a man holding a girdle and a sceptre, with large feathers on his head, from whose mouth an egg proceeded, out of which another deity came, called by them Phtha, and by the Greeks Vulcan: and according to their explanation of this mysterious figure, the feathers denoted the hidden and invisible nature of this intelligence, the power it had of giving life, the dominion over all things, and the spirituality of its movements; and the egg which came from his mouth indicated the world, of which he was the maker. This opinion is confirmed by the testimony of Iamblichus, who, in the time of Eusebius, applied himself to the study of Egyptian theology, and who endeavours to prove what Chæremon had stated, that the general belief of the Egyptians was not that an inanimate being was the cause of all things, but that in the world, as well as in ourselves, they recognised the soul superior to nature, and the intelligence which created the world superior to the soul.'

But I have already shown how unsatisfactory are the opinions of Greek writers respecting the religion of the Egyptians; and, with the exception of a few notions, which may be gleaned from the tenets of those who had studied and were initiated into the mysteries of Egypt, little can be learnt of their philosophy, or their religious system. Iamblichus, Plato, and some others, indeed, have contributed to throw some light on the subject, and the former gives the following account of the cosmogony of Egypt from the ancient Hermetic books:—'Before all things that essentially exist,[2] and before the total principles,

[1] Cory, 'Fragments,' p. 237.

[2] This is the translation given in Cory's valuable collection of 'Ancient Fragments,' p. 283.

there is one God, prior to the first god and king, remaining immovable in the solitude of his Unity; for neither is the Intelligible immixed with him, nor is any other thing. He is established, the exemplar of the God who is the father of himself, self-begotten, the only father, who is truly good. For he is something greater, and the first, the fountain of all things, and the root of all primary intelligible existing forms. But out of this one, the self-ruling God made himself shine forth; wherefore he is the father of himself, and self-ruling: for he is the first Principle, and God of gods. He is the Monad from the One, before essence, yet the first principle of essence, for from him is entity and essence; on which account he is celebrated as the chief of the Intelligibles. These are the most ancient principles of all things, which Hermes places first in order, before the ethereal and empyrean gods, and the celestial. But, according to another division, he (Hermes) places the god Emeph[1] as the ruler of the celestial gods; and says that he is Intellect, understanding himself, and converting other intelligences to himself. And before this he places the indivisible One, which he calls the first Effigies, denominating him Eicton; in whom, indeed, is the first Intellect, and the first Intelligible; and *this One is venerated in Silence.* Besides these, other rulers are imagined to exist, which govern the fabrication of things apparent; for the Demiurgos, Intellect, which properly presides over truth and wisdom, when it proceeds to generation, and leads forth *into light* the inapparent power of the secret reasons, is called Amôn, according to the Egyptian tongue; and when it perfects all things not deceptively, but artificially according to truth, Phtha: but the Greeks change the word Phtha into Hephæstus, looking only to the artificial; regarded as the producer of good things, it is called Osiris; and, according to its other powers and attributes, it has different appellations. There is also, according to them, another certain principle presiding over all the elements in a state of generation, and over the powers inherent in them, four of which are male and four female; and this principle they attribute to the sun. There is yet another principle of all nature, regarded as the ruler over generation, and this they assign to the moon. They divide the heavens also into two parts, or into four, twelve, or thirty-six, or the doubles of these; they attribute to them leaders more or less in number, and over them they place one whom they consider superior to

[1] Generally supposed to be a mistake for Kneph.

them all. Hence, from the highest to the last, the doctrine of the Egyptians concerning the principles inculcates the origin of all things from One,[1] with different gradations to the many; which (the many) are again held to be under the supreme government of the One; and the nature of the Boundless is considered entirely subservient to the nature of the Bounded, and the Supreme Unity the cause of all things. And God produced matter from the materiality of the separated essence, which, being of a vivific nature, the Demiurgos took it, and fabricated from it the harmonious and imperturbable spheres; but the dregs of it he employed in the fabrication of generated and perishable bodies.'[2] Another idea of the origin of things is thus explained in what are termed the modern Hermetic books: 'The glory of all things is God, and Deity, and divine Nature. The principle of all things existing is God, and the intellect, and nature, and matter, and energy, and Fate and *conclusion* and *renovation*. For these were boundless darkness in the abyss, and water, and a subtile Spirit, intellectual in power, existing in Chaos. But the holy light broke forth, and the Elements were produced from among the sand of a watery Essence.'[3]

Iamblichus says,[4] that 'Chæremon and some others, who treat of the first causes of the phenomena of the world, enumerate in reality *only the lowest principles;* and those who mention the planets, the zodiac, the dreams, and horoscopes, and the stars termed mighty chiefs, confine themselves to particular departments of the productive causes. Such topics, indeed, as are contained in the Almanacs, constitute but a very small part of the institutions of Hermes; and all that relates to the apparitions or occultations of the stars, or the increasings or wanings of the moon, has the *lowest place* in the Egyptian doctrine of *causes. Nor do the Egyptians resolve all things into physical qualities;* but they distinguish both the animal and intellectual life from nature itself, not only in the universe, but in man. They consider intellect and reason in the first place, as existing by themselves, and on this principle they account for the creation of the world.' He also states, that 'they rank first the Demiurgos, as the parent of all things which are produced, and acknowledge that vital energy which is prior to, and subsists in, the heavens, placing

[1] 'Homer even exempts the demiurgic monad from all the multitude of gods.' (Taylor's Introduct. to Plato's Republic, p. 147.)

[2] Iamblichus, sect. viii. c. 2, 3.

[3] Serm. Sac. lib. iii. Cory, p. 286.

[4] Iamblichus, sect. viii. c. 4.

pure intellect at the head of the universe; and they allot one invisible soul to the whole world, and another divided one to all the spheres.'

I now extract a few observations respecting the outlines of the principal dogmas of Plato, from the Introductory Essay of his translator.[1] 'According to Plato, the highest God, whom in the Republic he calls *good*, and in the Parmenides *the one*, is not only above soul and intellect, but is even superior to being itself. Hence, since everything which can in any respect be known, or of which anything can be asserted, must be connected with the universality of things, but the first cause being above all things, it is very properly said by Plato to be perfectly ineffable. The first hypothesis, therefore, of his Parmenides, in which all things are denied of this immense principle, concludes as follows:—The one, therefore, *is* in no respect. So it seems. Hence it is not in such a manner as *to be* one, for thus it would be *being*, and participate of *essence;* but as it appears, *the one* neither *is one*, nor *is*, if it be proper to believe in reasoning of this kind. It appears so. But can anything either belong to, or be affirmed of, that which is not? How can it? Neither, therefore, does any *name* belong to it, nor *discourse*, nor any *science*, nor *sense*, nor *opinion*. It does not appear that there can. Hence it can neither be *named*, nor *spoken of*, nor *conceived by opinion*, nor be *known*, nor *perceived* by any being. So it seems. . . . . Prior to *the one*, therefore, is that which is simply and perfectly ineffable, without position, uncoordinated, and incapable of being apprehended. . . . From this truly ineffable principle, exempt from all essence, power, and energy, a multitude of divine natures, according to Plato, immediately proceed. . . . . He affirms (in the sixth book of his Republic), that *the good*, or the ineffable principle of things, is superessential, and shows the analogy of the sun to *the good;* that what *light* and sight are in the visible, *truth* and *intelligence* are in the intelligible world. As light, therefore, immediately proceeds from the sun, and wholly subsists according to a solar idiom or property, so *truth*, or the immediate progeny of *the good*, must subsist according to a superessential idiom. And as *the good*, according to Plato, is the same with *the one*, the immediate progeny of *the one* will be the same as that of *the good*. . . . Self-subsistent superessential natures are the immediate progeny of *the one*, if it be lawful thus to denominate things which ought rather to be called ineffable

[1] Taylor's Trans. of Plato, Introd. p. v.

unfoldings into light, from the ineffable; for progeny implies a producing cause, and *the one* must be conceived as something even more excellent than this. From this divine self-perfect and self-producing multitude, a series of self-perfect natures, viz. of beings, lives, intellects, and souls, proceeds, according to Plato, in the last link of which luminous series he also classes the human soul,[1] proximately suspended from the dæmoniacal order; for this order, he clearly asserts in the Banquet,[2] 'stands in the middle rank between the divine and human, fills up the vacant space and links together all intelligent nature.'

According to Plato,[3] the Egyptians supposed the world to be subject to occasional deluges and conflagrations, as a punishment for the wickedness of mankind; and the returns of the great catastrophe were fixed by them according to the period of their *great year*, 'which Aristotle calls the greatest, rather than the great,' when the sun and moon and all the planets returned to the same sign whence they started: 'the winter of which year was the deluge, and its summer the conflagration of the world.'[4] The notion of the deterioration of man, and the fables of the golden and iron ages, were also of Egyptian origin; and the story of the Atlantic Island[5] having been submerged, was said to have been derived by Solon from the same source. Plato supposed that the Deity delegated the power of creating to beings inferior to himself, denominated dæmons; perhaps, with the notion that man alone, who was exclusively gifted with intellect, was the work of the Deity himself; and Plutarch,[6] in speaking of these intermediate beings, observes, 'that some suppose what is related of Isis, Osiris, and Typho, to be the adventures of the grand dæmons or genii; an order of beings which some of the wisest of the Greek philosophers, as Plato, Pythagoras, Xenocrates, and Chrysippus, agreeably to what they learnt from the ancient theologists, believed to be much more powerful than mankind, and of a nature superior to them, though inferior to the pure nature of the gods, as partaking of the sensations of the body as well as of the perceptions of the soul, and consequently liable to pain or pleasure, and to all other appetites and affections; which affections were supposed to have a greater influence over some than others, different degrees of virtue and vice being found in these

[1] Plato, Timæus, p. 508 *et seq.*

[2] See also a copious account of the nature of dæmons, in the note at the beginning of the first Alcibiades.

[3] Plato, Critias.

[4] Censorin. de Die Nat.

[5] Plato, Tim. p. 469, Taylor's Transl.; and Critias.

[6] Plut. de Isid. s. 25.

genii, as in man.' According to Plato, they were 'a middle order of beings between gods and men, interpreters of the will of the former to mankind, ministering to their wants, carrying their prayers to heaven, and bringing down from thence, in return, oracles and all other blessings of life;' and, as Empedocles supposed, 'obnoxious to punishment for whatever crimes they committed, until, having undergone their distinct punishment, and thereby become pure, they were again admitted to their primitive situation, in the region originally designed for them.'

Of the Pythagorean doctrines, which were principally borrowed from Egypt, a summary account is given by Timæus the Locrian.[1] 'The causes of all things are two—intellect, of those which are produced according to reason; and necessity, of those which necessarily exist according to the powers of bodies. Of these, the first is of the nature of good, and is called God, the principle of such things as are most excellent. Those which are consequent, and concauses, rather than causes, may be referred to necessity, and they consist of Idea, or Form, and Matter, to which may be added the sensible world, which is, as it were, the offspring of these two. The first of these is an essence ungenerated, immovable, and stable, of the nature of Sameness, and the intelligible exemplar of things generated, which are in a state of perpetual change: this is called Idea or Form, and is to be comprehended only by Mind. But Matter is the receptacle of Form, the mother and female principle of the generation of the third Essence; for by receiving the likenesses upon itself, and being stamped with Form, it perfects all things, partaking of the nature of generation. And this matter, he says, is eternal, movable, and of its own proper nature, without form or figure, yet susceptible of receiving every form; it is divisible also about bodies, and is of the nature of Different. They also call matter "Place and Situation." These two, therefore, are contrary principles: Idea or Form is of the nature of male and father; but Matter, of the nature of female and mother; and things which are of the third nature, are the offspring of the two. Since, then, there are three natures, they are comprehended in three different ways: Idea, which is the object of science, by Intellect; Matter, which is not properly an object of comprehension, but only of analogy, by a spurious kind of reasoning; but things compounded of the two are the objects of sensation and opinion, or appearance.

[1] Cory, p. 301.

Therefore, before the heaven was made, there existed in reality Idea and Matter, and God, the demiurgos of the better nature: and since the nature of Elder (continuance) is more worthy than that of Younger (novelty), and order than of disorder; God in his Goodness, seeing that Matter was continually receiving form, and changing in an omnifarious and disordered manner, undertook to reduce it to order, and put a stop to its indefinite changes by circumscribing it with a determinate figure; that there might be corresponding distinctions of bodies, and that it might not be subject to continual variations of its own accord. Therefore he fabricated this world out of all the matter, and constituted it the boundary of essential nature, comprising all things within itself, one, only-begotten, perfect, with a soul and intellect (for an animal so constituted is superior to one devoid of soul and intellect): he gave it also a spherical body, for such of all other forms is the most perfect. Since, therefore, it was God's pleasure to render this his production most perfect, he constituted it a god, generated indeed, but indestructible by any other cause than by the God who made it, in case it should be his pleasure to dissolve it.'

From the statement of Iamblichus, we perceive that the Monad or deity in Unity preceded the Trinity or Triad by which all things were created, and that what was denominated the first God, or King of the Gods, also existed, like the Monad, before the formation of the world. These deities are, therefore, 1st, The God, the Monad, or deity in Unity; 2nd, The first God, or first principle, chief of Intelligibles: or, 1st, Eicton, the first effigies, the indivisible one; 2nd, Emeph (Kneph?) the ruler of the gods, Intellect, understanding himself. This Intellect, when it proceeds to generation, is called Amen, the demiurgic Intellect; Ptah, when it perfects all things with truth; or Osiris, when regarded as the author of good; or other names according to its different offices and powers. There are also the principles presiding over the elements in a state of generation, and over the powers in them, four of which are male and four female; one of them being the *sun*, and another the *moon*. Then follows another class of the rulers of the heavens, which is divided into two parts.

Prichard thinks that Ptah 'is the masculo-feminine Being of the Orphic philosophy, produced in the Chaotic Egg and acting upon its elements;' and quotes this passage of Horapollo in support of his opinion: 'The world seems to the Egyptians

to consist of a masculine and feminine nature, and they designate Minerva by a vulture (and a beetle), and Vulcan by a beetle (and a vulture); for these are the only gods which are represented by the Egyptians as having a double nature, or as being both masculine and feminine.'[1] He thence concludes with Jablonski, that 'the goddess whom the Greeks call Minerva, and who was worshipped at Saïs, was the counterpart of Phthas, or the same Being in his feminine character.' But this is not supported by the evidence of the monuments, nor is there any relation between Ptah and the Egyptian Minerva.

I have here, and in other places, introduced several theories of Greek and Roman writers on the subject of mythology, and have mentioned some of the speculations of philosophers who studied in or visited Egypt. But I must not omit to observe that the opinions of late writers, as Porphyry, Iamblichus, Proclus, and all the Neo-Platonists of the Alexandrian school, should be admitted with considerable caution. Though many of their speculations were derived from an Egyptian source, the original was often even more than *parcè distorta;* and no doctrine of theirs can be accepted as illustrative of Egyptian notions, which is not confirmed by the monuments, or expressly stated to be taken from the philosophy, of Egypt.

The works of Plato and other more ancient writers evidently contain much that owes its origin to the knowledge they acquired from the Egyptians, and Pythagoras imitated many notions of his instructors with scrupulous precision. Such authorities are of the greatest use in the examination of the dogmas of this people, and they had the advantage of studying them at a time and place in which religion was not exposed to fanciful innovations. But when it had been encumbered with the superstructure of arbitrary fancy, which the schools of Alexandria heaped upon it, the original form became distorted, meanings were attached to various symbols which they never possessed, and the attributes of one deity were ignorantly assigned to another of a totally different character. I have already had occasion to notice the misconceptions of the Greeks and Romans on the most ordinary subjects connected with the religion of Egypt; and little reliance can be placed upon their information respecting the abstruse and recondite speculations of the Egyptian philosophers, when they changed the very forms of well-known deities, and mistook the

[1] Horapollo, lib. i. c. 12.

attributes of those which were presented to them on every monument.

I now proceed to compare the statements of Herodotus and others with data derived from the monuments. If it be true that the number of the great gods of the Egyptians was limited to eight, we may suppose them to be—

1. Neph, or Kneph.
2. Amen, or Amen-ra.
3. Phthah, Pthah, or Ptah.
4. Khem.
5. Sati.
6. Mut (or perhaps Buto).
7. Bubastis.
8. Neith.

Ra, the physical sun, might also appear to enjoy an equal claim to a rank among the great gods of Egypt: and in a former work[1] I have introduced that deity instead of Bubastis; but it is more probable that Amen-ra and Ra were not of the same class of deities, as the intellectual was of a more exalted nature than the physical sun. From Ra proceeded a number of other deities, and the most remarkable of those styled the offspring of the sun are the goddess of truth or justice, Shu, Tafnut, Selk, and Nahamua.

Herodotus mentions the eight great gods, but without giving their names. He states, however, that Pan[2] (Khem) and Latona[3] (Buto) were among the number, and that to the eight great gods succeeded twelve others of inferior rank, who were followed by the minor deities. These last consisted of many different grades, according to their character and office; and besides the heavenly and infernal deities, were genii of various kinds, as well as inferior divinities, worshipped in particular places, or by certain individuals. Diodorus[4] seems to agree in the *number* of eight great gods;[5] giving the names of 'the Sun, Saturn, Rhea, Jupiter (called by some Ammon), Juno, Vulcan, Vesta, and Mercury.' Chæremon thinks they were ten. Twelve and eight were the numbers applied to the Dii Consentes and Selecti of the Romans; but of these the twelve held the first rank.

From Seb also, who was confounded by the Greeks with Saturn, other gods proceeded, and the offspring of this deity and Nut were Osiris, Isis, Aroeris, Typho, and Nephthys. According to Manetho's Chronology, given by Syncellus, two dynasties

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[1] 'Materia Hieroglyphica,' p. 2.
[2] Herodot. ii. 145.
[3] Ibid. ii. 156.
[4] Diodor. i. 13.
[5] Though not directly stated, he evidently means the gods of Egypt.

of sixteen deities preceded the first kings of Egypt; one consisting of seven gods, the other of nine demigods.

Gods.	Years.	Days.
Vulcan, who reigned	724½	and 4
The Sun	86	
Agathodæmon	56½	and 10
Chronus, Saturn	40½	
Osiris } Isis }	35	
Typho	29	

Demigods.	Years.
Horus, who reigned	25
Mars	23
Anubis	17
Hercules	15
Apollo	25
Ammon	30
Tithoes	27
Zosus	32
Zeus	20

The usual mode of accounting for this reign of the gods is by referring it to the time during which the priests of each deity held the supreme authority, when Egypt was governed by a hierarchy, previous to the election of a king; but great doubts are thrown on the accuracy of this list of deities from its inconsistency, the names of some of the great gods being classed in the order of demigods.

It were to be wished that more dependence could be placed on the accounts of Herodotus and other Greek writers; but when they so erroneously suppose that the statues of the Theban Jupiter, Amen, 'represented him with the head of a ram,'[1] and that 'Pan was called Mendes[2] by the Egyptians,' and 'figured by them, as by the Greeks, with the head and legs of a goat,' we must despair of obtaining correct information upon the subject before us, and only receive their evidence after cautious investigation. That Neptune and the Dioscuri were not known[3] to the Egyptians is very probable; and another remark of Herodotus is equally consistent, that 'Isis was the greatest of all the deities,'[4] and that she enjoyed with Osiris the same honours throughout every part of Egypt, a privilege not granted to the other gods.[5] But he has confounded Pan, whom he allows to be one of the eight gods,[6] with Mentu,[7] an inferior deity; and Bubastis, Diana, was not, as he affirms, the daughter of Isis and Osiris.[8] These instances of inaccuracy suffice to make us careful in taking so dubious an authority; and we cannot even be certain that Buto held the rank he gives her among the first class of deities.[9]

If in every town or district of Egypt the principal temple

[1] Herodot. ii. 42.

[2] Ibid. ii. 46. [Mendes is now recognised as the goat-headed Ba-en-tattu, owing to the interchange of the M and the B; Ma-en-tattu approaching the Greek Mendes.—S. B.]

[3] Herodot. ii. 43 and 50.

[4] Ibid. ii. 40.

[5] Ibid. ii. 42.

[6] Ibid. ii. 145.

[7] Ibid. ii. 46.

[8] Ibid. ii. 156.

[9] Ibid.

had been preserved, we might discover the nature of the triad worshipped there, as well as the name of the chief deity who presided in it, and thus become better acquainted with the character of the great gods, and of most of the persons composing the numerous Egyptian triads. Few, however, can now be ascertained; and in Lower Egypt and the Delta little information is offered by the imperfect remnants of isolated monuments.

At Thebes,
The great triad consisted of Amen or Amen-ra, Mut, and Khonsu.
The smaller triad, of Amen the Generator, Tamen, and the young Harka.
At Syene, Elephantine, and the Cataracts,
Kneph, Satis (Juno), and Anoukis (Vesta).
At Philæ,
Osiris, Isis, and Horus or Harpocrates.
At Edfoo or Apollinopolis Magna,
Har-Hat, Athor, and Har-semt-ta.
At Esneh or Latopolis,
Chnoumis, Nebuu (a form of Neith), and Hak.t.
At Silsilis,
Ra, Ptah, and Nilus: where also are *Typho*, Thoth, and Nut; and Amen-ra, Ra, and Sebak.
At the quarries of the *Troici lapidis*, near Maasara,
Thoth, Nahamua, and Horus or Aroeris.
At Ombos,
The great triad consisted of Sebak, Athor, and Khonsu.
The lesser triad, of Horus or Aroeris, Sen-t-nofre, and the young Pnêb-ta.
At Hermonthis,
Mentu, Ra-ta, and their child Har-para.

The funeral triad, composed of Osiris, Isis, and Nephthys, occurs in all the tombs throughout the country; and many others, variously combined, in different towns and provinces of Egypt. I have also seen a triad represented on a stone, consisting of Ra, Agathodæmon or a winged asp, and a goddess apparently with a frog's head; in a Greek inscription upon the reverse of which mention is made of Bait, Athor, and Akori.

Bait seems to be the Baieth of Horapollo; but it is not easy to assign the Greek names to each figure on the obverse; and as it is of late time, the authority both of these and of the Greek

names is of very little weight. The inscription, however, is curious, from the analogy it bears to some of those ascribed to the early Christian Gnostics, and serves to show the idea entertained by the pagan Egyptians of a 'triformous deity,' 'the father of the world,' who assumed different names according to the triad under which he was represented.

Stone representing a triad in these words: 'One Bait, one Athor (one of the Bia), and one Akori. Hail, father of the world! hail, triformous god!' in elegiac verse.[1]
No. 494. *British Museum.*

The great triads were composed of the principal deities, the first two members being frequently of equal rank, and the third, which proceeded from the first by the second, being subordinate to the others; as in the case of Osiris, Isis, and Horus, or Amen, Mut, and Khonsu. Other triads were formed of deities of an inferior class; and it sometimes happened that, with the unworthy feeling of paying a high compliment to the ruling monarch, a sort of triad was composed of two deities and the king, as at Thebes, where Rameses III. is placed between Osiris and Ptah; at Aboukeshayd,[2] where the Great Rameses occurs between Ra and Atmu; and others in other places. At Silsilis, the King Ptahmen, Meneptah, offers to a triad composed of Osiris, Isis, and Rameses the Great, the latter taking the place of Horus, to whom the Egyptian kings were frequently likened; and to such a point was this degradation of religion carried in the time of the Ptolemies, that at Hermonthis a triad composed of Julius Cæsar, Cleopatra, and Neocæsar, their illegitimate son, took the place[3]

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[1] [Others think it is, 'Thou art Bait (the soul); thou art Athor, one of the Bia; and thou art Akori (the viper). Hail, father of the world! hail, triform god!' and they think that the Greek inscription may be of later time, when the stone was used as an Abraxis. Col. Leake was of opinion that the trinity named BIA consisted of Buto, Isis, and Athor = Lato, Demeter, and Aphrodite = Latona, Ceres, and Venus; the words μία τῶν BIA implying that the trinity were all females.—G. W.]

[2] On the Suez canal. A copy of the stone containing these three figures is given in 'Materia Hieroglyphica,' Appendix No. 4.

[3] Champollion, Lettres viii. and xii., pp. 106 and 206 [who was the first to notice the triads.—G. W.].

of the three deities, Mentu, Ra-ta, and Har-para, worshipped in that city.

With regard to the former of these combinations, in which a king is represented as proceeding from two deities and forming the third person of a triad, some excuse may be offered, upon the plea of their selecting the most important result of the power of the Deity, upon this principle: the influence of *intellect* on *matter* producing the *created being* in the king; and *this the noblest work* of the Creator being put forth in lieu of the *whole creation*. But the same apology cannot be offered for the latter; and to the servile flattery of some members of the priesthood, and to the abuses introduced under the Ptolemies, is to be attributed this great profanation of the religious customs of the Egyptians.

No. 495. Offerings of onions made by a priest to his deceased parents.

The inscriptions are as follows: The seated male figure is 'his brother, priest of Amen, Har-a, surnamed Kairu, truth-speaking,' deceased, and at his side is 'his sister, the lady of the house,' a married woman, 'Ta-ari, truth-speaking.' The priest offering the bunch of onions is 'his son, a chancellor of Amen, Bak en amen.' This is taken from a tablet where other figures appear.—S. B.

END OF VOL. II.

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